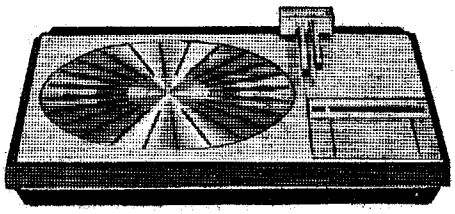
BEOGRAM 4000
TYPE 5215



SERVICE MANUAL

CONTENTS SECTION/PAGE

TECHNICAL DATA 1
Diagram explanation . . . . . 1 - 2

DISASSEMBLY 2

CIRCUIT DIAGRAM, PC-BOARDS AND PARTS LIST 3
Circuit Diagram . . . . . 3 - 1
Transistor List . . . . . 3 - 3
Parts List . . . . . 3 - 4
PC-boards . . . . . 3 - 5

ADJUSTMENT 4
Mechanical . . . . . 4 - 1
Adjustment of Turntable . . . . . 4 - 1
Adjustment of Chassis . . . . . 4 - 1
Adjustment of Belt Drive . . . . . 4 - 2
Adjustment of Stroboscope . . . . . 4 - 2
Adjustment of Slide Contacts . . . . . 4 - 2
Adjustment of Dial Pointer . . . . . 4 - 3
Adjustment of Magnet Coil System . . . . . 4 - 3
Adjustment of Pickup Arm System . . . . . 4 - 4
Adjustment of Diaphragm . . . . . 4 - 6
Adjustment of Damper Cylinder . . . . . 4 - 6
Adjustment of Spindle . . . . . 4 - 6
Electrical . . . . . 4 - 7
Adjustment of Speed . . . . . 4 - 7
Adjustment of Slow Slide Transport . . . . . 4 - 7
Adjustment of Voltage for Drive Motor . . . . . 4 - 7
Adjustment of Differential Stop . . . . . 4 - 8
Lubrication Chart . . . . . 4 - 8

CHECKING AND FAULT-FINDING DIAGRAMS 5

PARTS LIST 6

SERVICE TIPS 7
Dismounting and mounting of Pushbutton . . . . . 7 - 1
Dismounting of Slide . . . . . 7 - 1
Mounting of Cable in the Pickup Arm . . . . . 7 - 1

TECHNICAL DATA

Motor			**BEOGRAM 4000 type 5215**
Wow and Flutter	DIN 45 500, Page 3		<±0.05 %
	RMS		<±0.025 %
Rumble	DIN 45 500, Page 3	A B	>42 dB >65 dB
Speed Control Range			>6 %
Motor Speed			315/435 rpm
Motor Suspension Resonant Frequency and Weight			3.5 Hz hor., 5 Hz vert. 4.5 kg

Pick-up			
Frequency Response	DIN 45 500, Page 3	±5 dB ±2 dB	20 - 30,000 ± 2.5 dB 50 - 20,000 ± 1.5 dB
Channel Separation	DIN 45 500, Page 3	1000 Hz 500 - 6300 Hz	>25 dB >20 dB
Channel Matching	DIN 45 500, Page 3		< 1.5 dB
Output Voltage and Load		mV/cm/sec. music average	0.6 mV/47 kohms 3 mV/47 kohms
Intermodulation	DIN 45 500, Page 3		<1 %
Compliance	Stated value X 10^{-6} cm/dyn.		30
Stylus			Elliptical naked diamond 5 X 17 µ
Recommended, Stylus Pressure			1 gram
Stylus Pressure Range			0 - 1.5 gram
Maximum Tracking Angle Error	With optimal adjustment		0.04°
Arm Length, Suspension to Stylus			155 mm
Replacement Stylus Assembly			Complete cartridge type 8905428

Other Data		
Power Supply		110, 130, 220,240 volts 50 - 60 Hz 40 watts
Dimensions		10 X 49 X 38 cm
Weight		12 kg

		BEOGRAM 4000 Type 5215
Speeds		33 - 45 rpm electronic section
Pickup-arm System		Tangential
Pickup Cartridge		SP 15
Automatic Record-size Scanning		Yes
Automatic Pickup-movement Control		Yes
Automatic Speed Selection		Yes
Cueing Control		Electronic air-pressure damped
Skating Compensation		Parallel tracking error angle compensated
Drive System		Belt
Motor		Synchronous electronically controlled
Vernier Speed Adjustment		Yes separately
Motor Suspension System		Leaf springs and pendulums
Turntable, Diameter and Weight		Zinc cast, diameter 300 mm 2.2 kg
Stroboscopic Scale		Light indicator 33 and 45 rpm 50 and 60 Hz
Dust Cover		Transparent, hinged and detachable
Meets DIN 45 500 Requirements		Yes

Subject to change without notice

DIAGRAM EXPLANATION

The electrical circuits are, concerning diagram, divided into two diagrams.

1. Control circuit (logic)
2. Power supply, indicator circuit, speed relais circuit, oscillator, lift circuit, motor control (servo), differential stop, detector circuit, etc.

The abbreviations used in connection with the common cable are the abbreviations of the functions in English. The outputs of the flip-flops are designated Q and $\bar{Q}$

The stated voltages are positive in relation to chassis. They are measured with the detector arm above the ribs of the turntable with no record on and with a stationary pick-up arm.

ADSKILLELSE

DISASSEMBLY/ZERLEGUNG

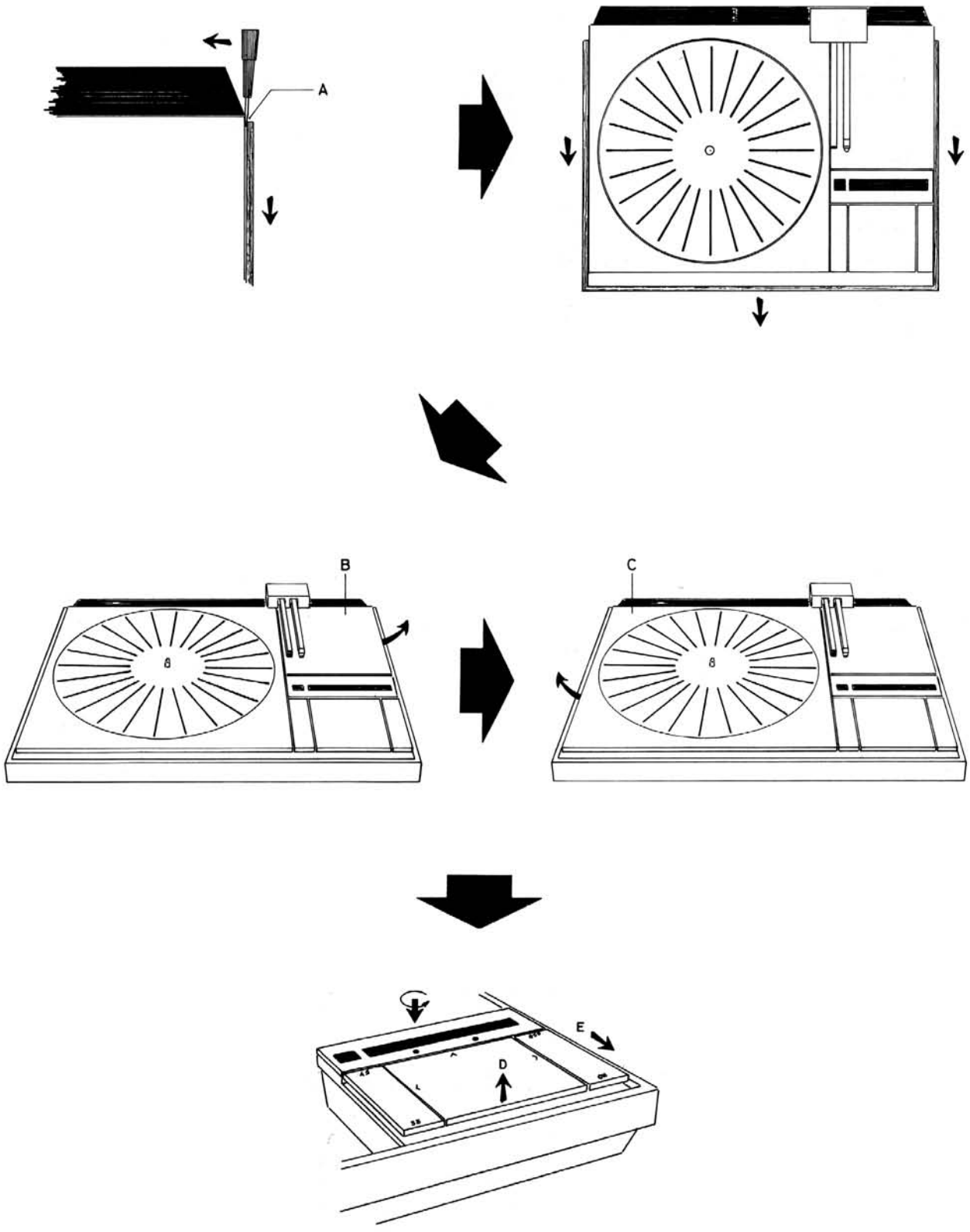
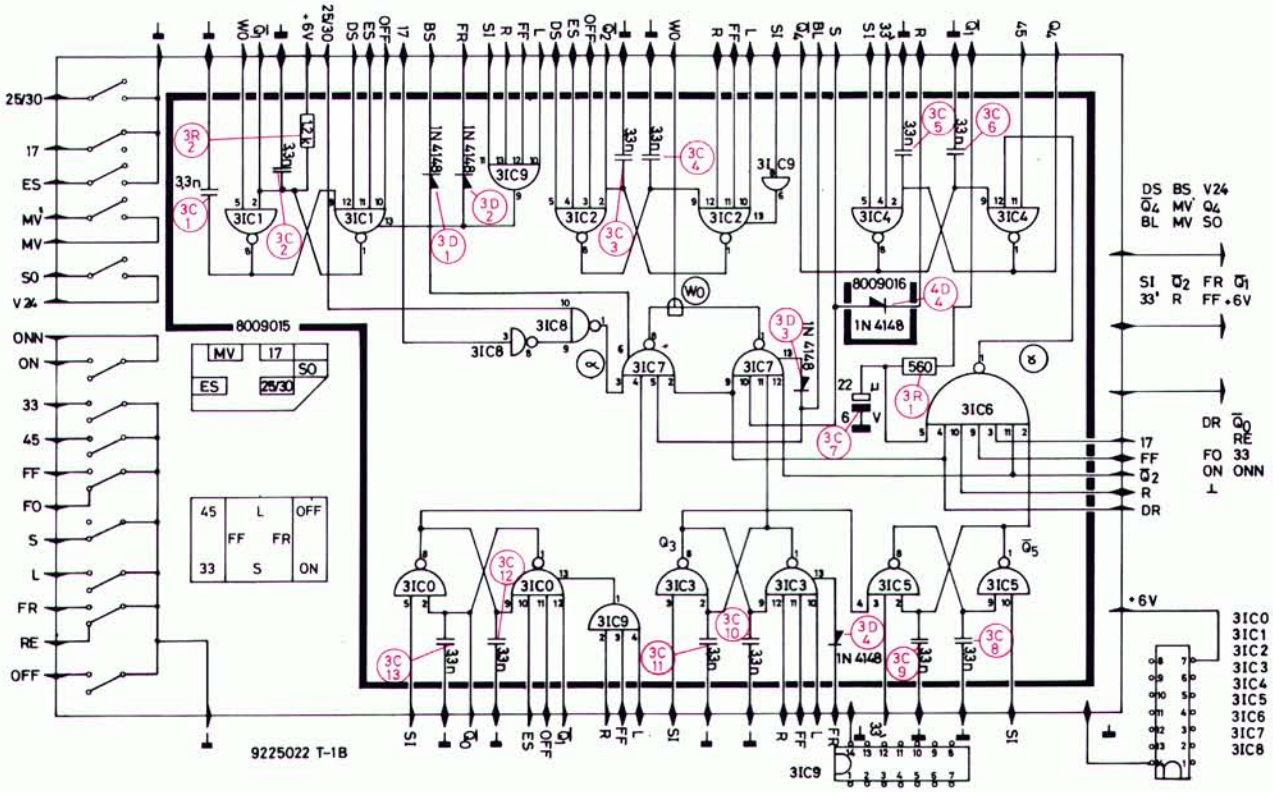
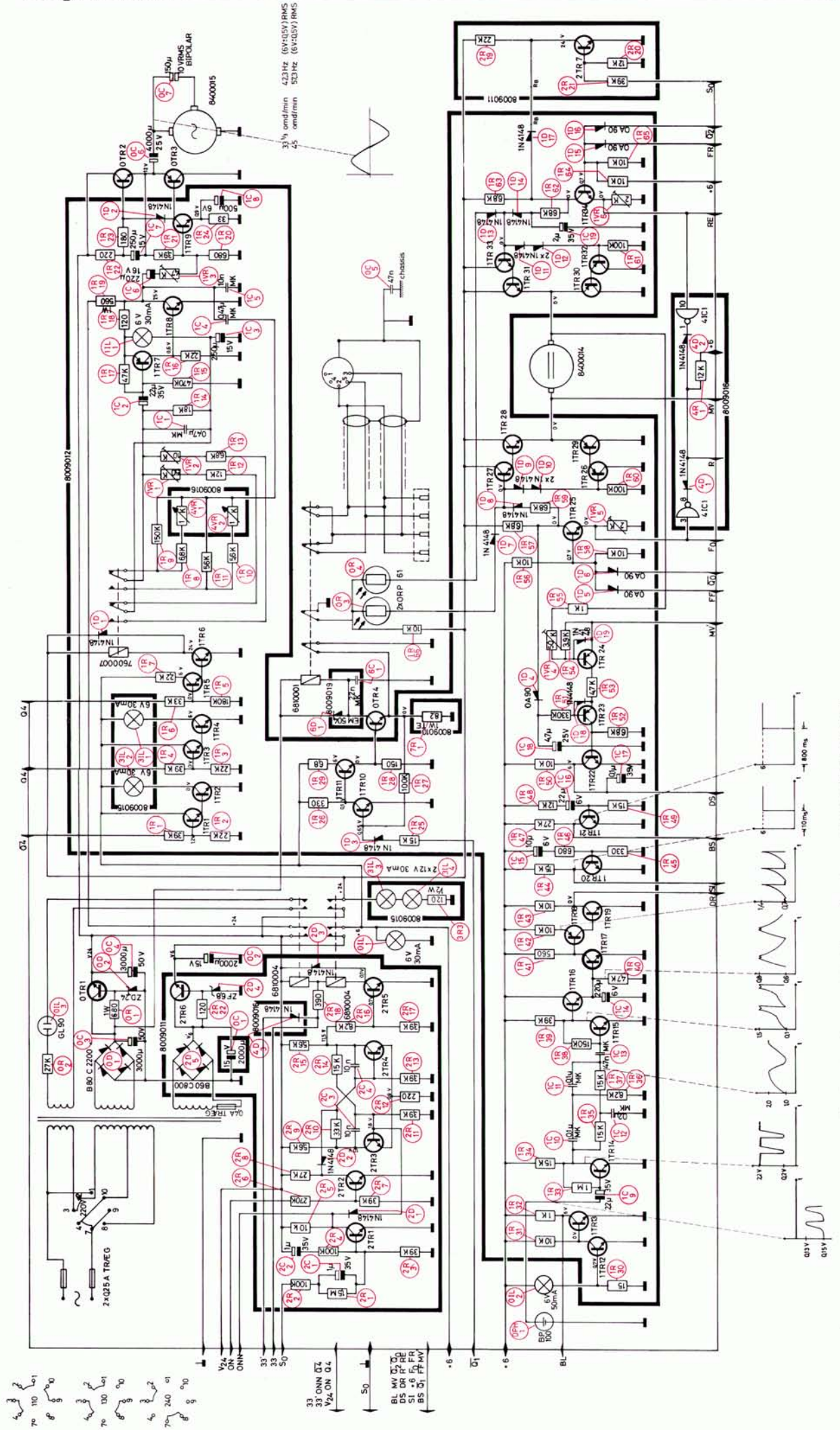


DIAGRAM 1



	INDEX	14 13 12 11 10 9 8 / 1 2 3 4 5 6 7
3 IC 0 3 IC 1 3 IC 2 3 IC 3 3 IC 4 3 IC 5	8340013	FCH 131
3 IC 6	8340012	FCH 111
3 IC 7 3 IC 8	8340013	FCH 131
3 IC 9	8340011	FCY 101
4 IC 1	8340013	FCH 131



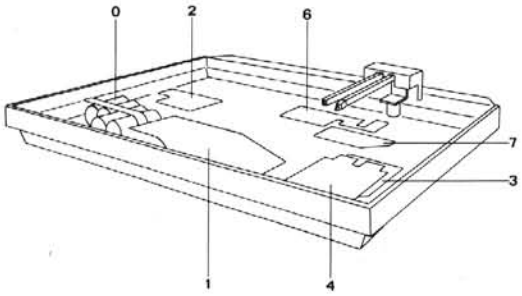
The stated voltages are positive in proportion to chassis and they have been measured after a record has been placed on the turntable, or the slave arm is not over the ribs, and 1)ON and 2) ∧ are activated.
Capacitors marked MK: metallized plastic.
The stated impulses are measured without a record and with the slave arm over the ribs.

Die aufgegebenen Spannungen sind positiv im Verhältnis zu Chassis, und sie sind gemessen, nachdem eine Platte auf den Plattenteller gelegt ist, oder der Sklavearm nicht über die Rippen ist, sowie 1)ON und 2)∧aktiviert sind.
Kondensatoren gekennzeichnet MK: Metallisierter Kunststoff.
Die aufgegebenen Impulsen sind ohne Platte und mit der Sklavearm über die Rippen gemässt.

De angivne spændinger er positive i forhold til stel, og målt efter at en plade er lagt på pladepolierkenen, eller slavearmen ikke er inde over ribberne samt 1)ON og 2)∧ er aktiveret.
Kondensatorer mærket MK: Metalliseret kunststof.
De angivne impulser er målt uden plade og med slavearmen ude over ribberne.

DIAGRAM 2

1TR1 1TR2 1TR3 1TR4 1TR5	8320095	BC 239 B BC 184 BK	BC 149 B		BC 169 B BC 184 BL	BC 109 B	
1TR6	8320097	BC 237 B BC 182 BK	BC 147 B		BC 167 B BC 182 BL	BC 107 B	
1TR7	8320161	BC 261 B			BC 212 BL	BC 251 B	
1TR8 1TR9	8320232					BC 142 BC 144	
1TR10	8320095	BC 239 B BC 184 BK	BC 149 B		BC 169 B BC 184 BL	BC 109 B	
1TR11	8320232					BC 142 BC 144	
1TR12 1TR13 1TR14 1TR15 1TR16 1TR17	8320095	BC 239 B BC 184 BK	BC 149 B		BC 169 B BC 184 BL	BC 109 B	
1TR18	8320161	BC 261 B			BC 212 BL	BC 251 B	
1TR19 1TR20 1TR21 1TR22	8320095	BC 239 B BC 184 BK	BC 149 B		BC 169 B BC 184 BL	BC 109 B	
1TR23 1TR24	8320161	BC 261 B			BC 212 BL	BC 251 B	
1TR25	8320097	BC 237 B BC 182 BK	BC 147 B		BC 167 B BC 182 BL	BC 107 B	
1TR26	8320161	BC 261 B			BC 212 BL	BC 251 B	
1TR27	8320097	BC 237 B BC 182 BK	BC 147 B		BC 167 B BC 182 BL	BC 107 B	
1TR28/ 1TR29 1TR30/ 1TR31	8320135					BC 143/ BC 144 BC 143/ BC 142	
1TR32	8320161	BC 261 B			BC 212 BL	BC 251 B	
1TR33 1TR34 2TR1 2TR2 2TR3 2TR4 2TR5	8320097	BC 237 B BC 182 BK	BC 147 B		BC547B BC 167 B BC 182 BL	BC 107 B	
2TR6	8320124					BC 119	
2TR7	8320097	BC 237 B BC 182 BK	BC 147 B		BC 167 B BC 182 BL	BC 107 B	
0TR1	8320103						2 N 5034
0TR2	8320266			TIP 31			
0TR3	8320265			TIP 32			
0TR4	8320312			TIP 41 A			



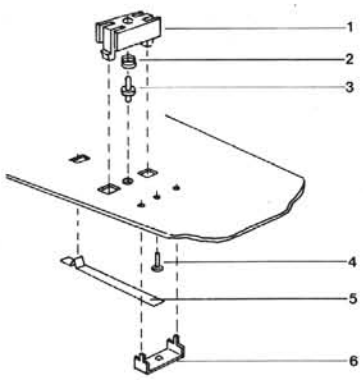
0

Pos.		Index
	R	
0R1	680, 5 %, 1 W	5012011
0R2	27k, 10 %, 1/2 W	5001047
0R3	ORP 61	5210004
0R4	ORP 61	5210004
	C	
0C1	2000 µ, 15 V	4200265
0C2	2000 µ, 15 V	4200265
0C3	3000 µ, 50 V	4200258
0C4	3000 µ, 50 V	4200258
0C5	47 n, 10 %, 250 V	4130087
0C6	4000 µ, 25 V	4200259
0C7	150 µ, 10 VRMS, BIPOLAR	4200260
	D	
0D1	B80C2200	8310020
0D2	24 V, 5 %, 1,3 W	8300160
	TR	
0TR1		8320103
0TR2		8320266
0TR3		8320265
0TR4		8320312
	IL	
0IL1	6 V, 30 mA	8230025
0IL2	6 V, 50 mA	8230020
0IL3	GL 90	8230038
	M	
0M1	6 V, AC	8400015
0M2	12 V, DC	8400014
	MS	
0MS1		6810001
	PH	
0PH1	BP 100	8760002

7 PC 8009010

Pos.	Plac.		Index
		R	
7R1	A1	8,2, TE, 5 %, 1 W	5100082

Pos.	25/30	17	ES	MV	SO
1	3152068	3152068	3152068	3152068	3152068
2		2812041			
3	7500060	7500067	7500060	7500060	7500060
4		2364024			
5	7500051	7500051	7500051	7500051	7500051
6	7500050		7500050	7500050	7500050

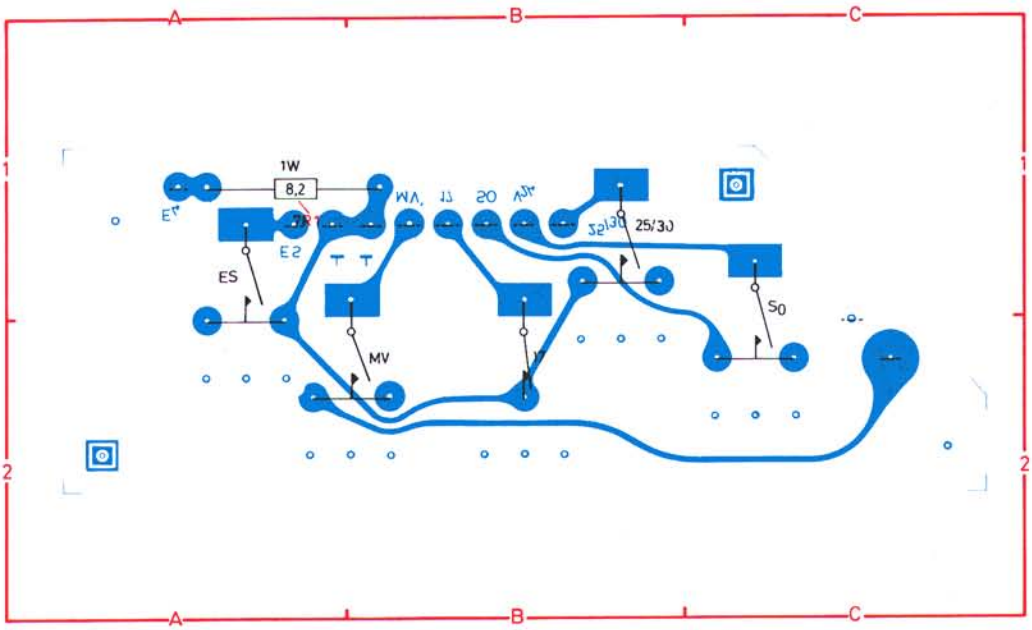


4 PC 8009016

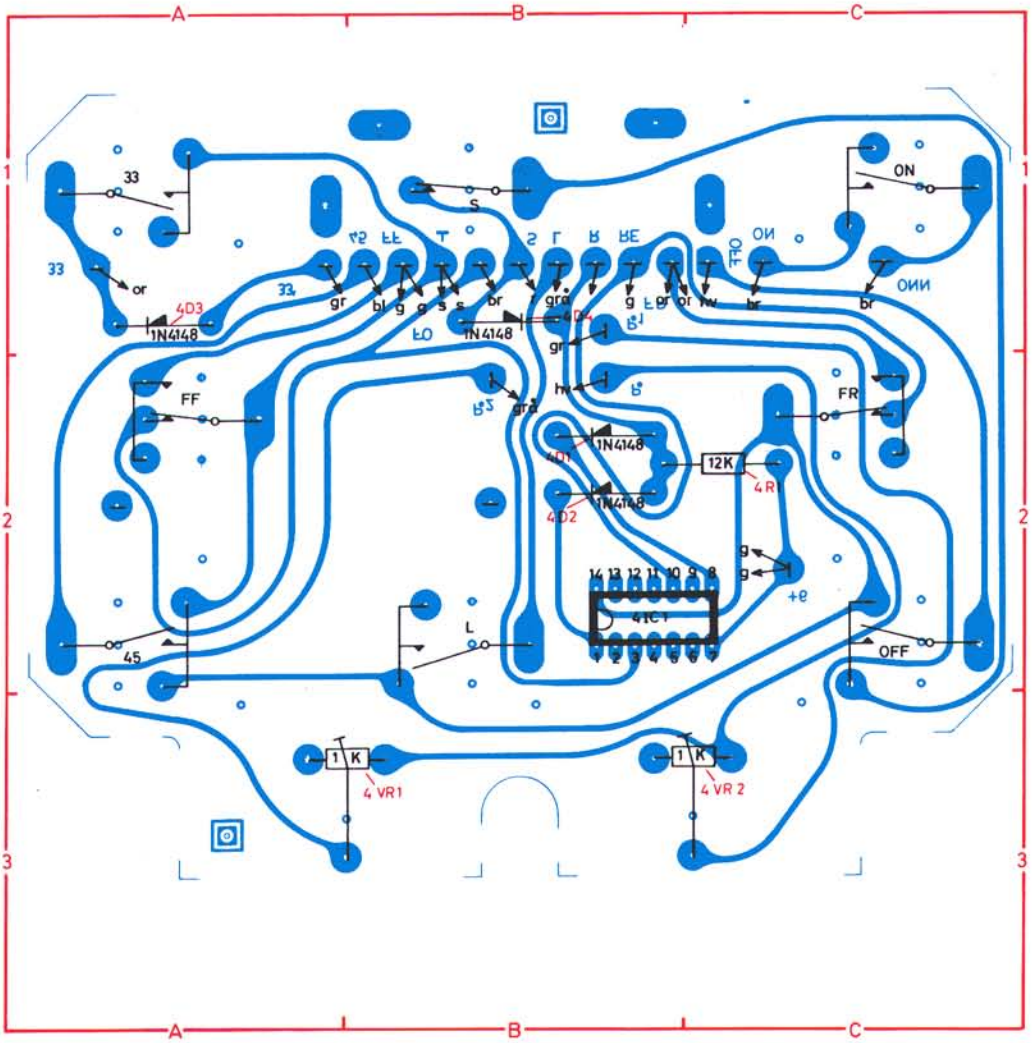
Pos.	Plac.		Index
		R	
4R 1	C2	12 k, 5 %, 1/8 W	5010046
		VR	
4VR1	B3	1 k, LIN, 0,15 W	5300079
4VR2	C3	1 k, LIN, 0,15 W	5300079
		D	
4D 1	B2	1N4148, SFD 184	8300058
4D 2	B2	1N4148, SFD 184	8300058
4D 3	A1	1N4148, SFD 184	8300058
4D 4	B1	1N4148, SFD 184	8300058
		IC	
4IC1	B2	FCH131	8340013

Pos.	33	FF	45	S	L	ON	FR	OFF
1	3152068	3152068	3152068	3152068	3152068	3152068	3152068	3152068
2								
3	7500059	7500066	7500059	7500059	7500059	7500059	7500066	7500059
4		2364024		2364024			2364024	
5	7500051	7500051	7500051	7500051	7500051	7500051	7500051	7500051
6	7500061	7500050	7500061		7500061	7500061	7500050	7500061

7 PC 8009010

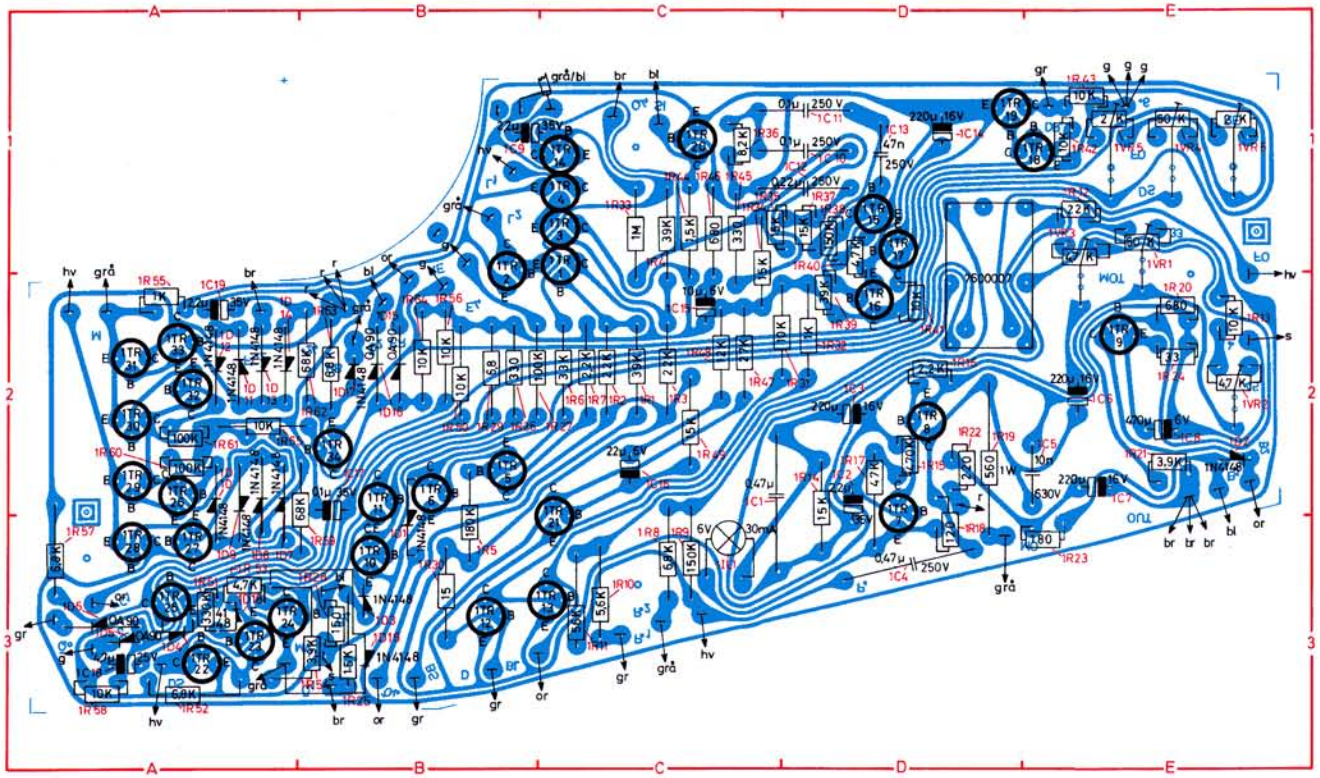


4 PC 8009016



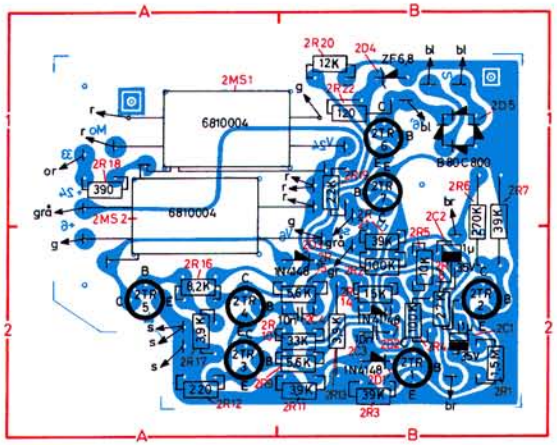
SET FRA KOMPONENTSIDE / SEEN FROM COMPONENT SIDE / VON DER BAUTEILSEITE AUS GESEHEN

1 PC 8009012

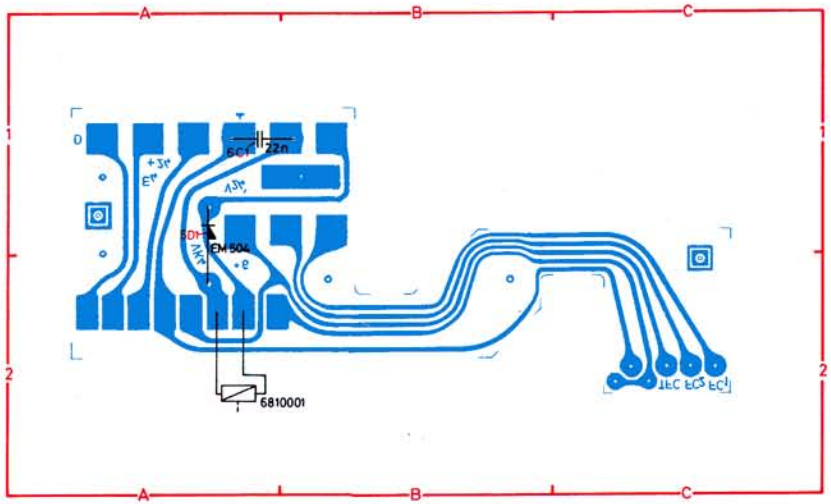


1TR11	B2	8320232
1TR12	B3	8320095
1TR13	C3	8320095
1TR14	C1	8320095
1TR15	D1	8320095
1TR16	D2	8320095
1TR17	D1	8320095
1TR18	E1	8320161
1TR19	D1	8320095
1TR20	C1	8320095
1TR21	C2	8320095
1TR22	A3	8320095
1TR23	A3	8320161
1TR24	A3	8320161
1TR25	A3	8320097
1TR26	A2	8320161
1TR27	A3	8320097
1TR28	A3	8320135
1TR29	A2	
1TR30	A2	8320135
1TR31	A2	
1TR32	A2	8320161
1TR33	A2	8320097
1TR34	B2	8320097

2 PC 8009011



6 PC 8009019



2 PC 8009011

Pos.	Plac.		Index
		R	
2R 1	B2	1,5 M, 10 %, 1/8 W	5010093
2R 2	B2	100 k, 5 %, 1/8 W	5010049
2R 3	B2	39 k, 5 %, 1/8 W	5010060
2R 4	B2	100 k, 5 %, 1/8 W	5010049
2R 5	B2	10 k, 5 %, 1/8 W	5010059
2R 6	B1	270 k, 5 %, 1/8 W	5010083
2R 7	B1	39 k, 5 %, 1/8 W	5010060
2R 8	B2	27 k, 5 %, 1/8 W	5010141
2R 9	A2	5,6 k, 5 %, 1/8 W	5010041
2R10	A2	33 k, 5 %, 1/8 W	5010075
2R11	B2	3,9 k, 5 %, 1/8 W	5010069
2R12	A2	220, 5 %, 1/8 W	5010092
2R13	B2	3,9 k, 5 %, 1/8 W	5010069
2R14	B2	15 k, 5 %, 1/8 W	5010053
2R15	B2	5,6 k, 5 %, 1/8 W	5010041
2R16	A2	8,2 k, 5 %, 1/8 W	5010154
2R17	A2	3,9 k, 5 %, 1/8 W	5010069
2R18	A1	390, 5 %, 1/8 W	5010070
2R19	B1	22 k, 5 %, 1/8 W	5010079
2R20	B1	12 k, 5 %, 1/8 W	5010046
2R21	B1	39 k, 5 %, 1/8 W	5010060
2R22	B1	120, 5 %, 1/8 W	5010128
		C	
2C 1	B2	1 µ/35 V	4201057
2C 2	B1	1 µ/35 V	4201057
2C 3	B2	10n/40 V	4010041
2C 4	B2	10 n/40 V	4010041
		D	
2D 1	B2	1N4148, SFD 184	8300058
2D 2	B2	1N4148, SFD 184	8300058
2D 3	B2	1N4148, SFD 184	8300058
2D 4	B1	6,8 V	8300154
2D 5	B1	B80C800	8300155
		TR	
2TR1	B2		8320097
2TR2	B2		8320097
2TR3	A2		8320097
2TR4	A2		8320097
2TR5	A2		8320097
2TR6	B1		8320124
2TR7	B1		8320097
		MS	
2MS1	A1		6810004
2MS2	A1		6810004
2MS1	A1		7600013
2MS2	A1		7600013

6 PC 8009019

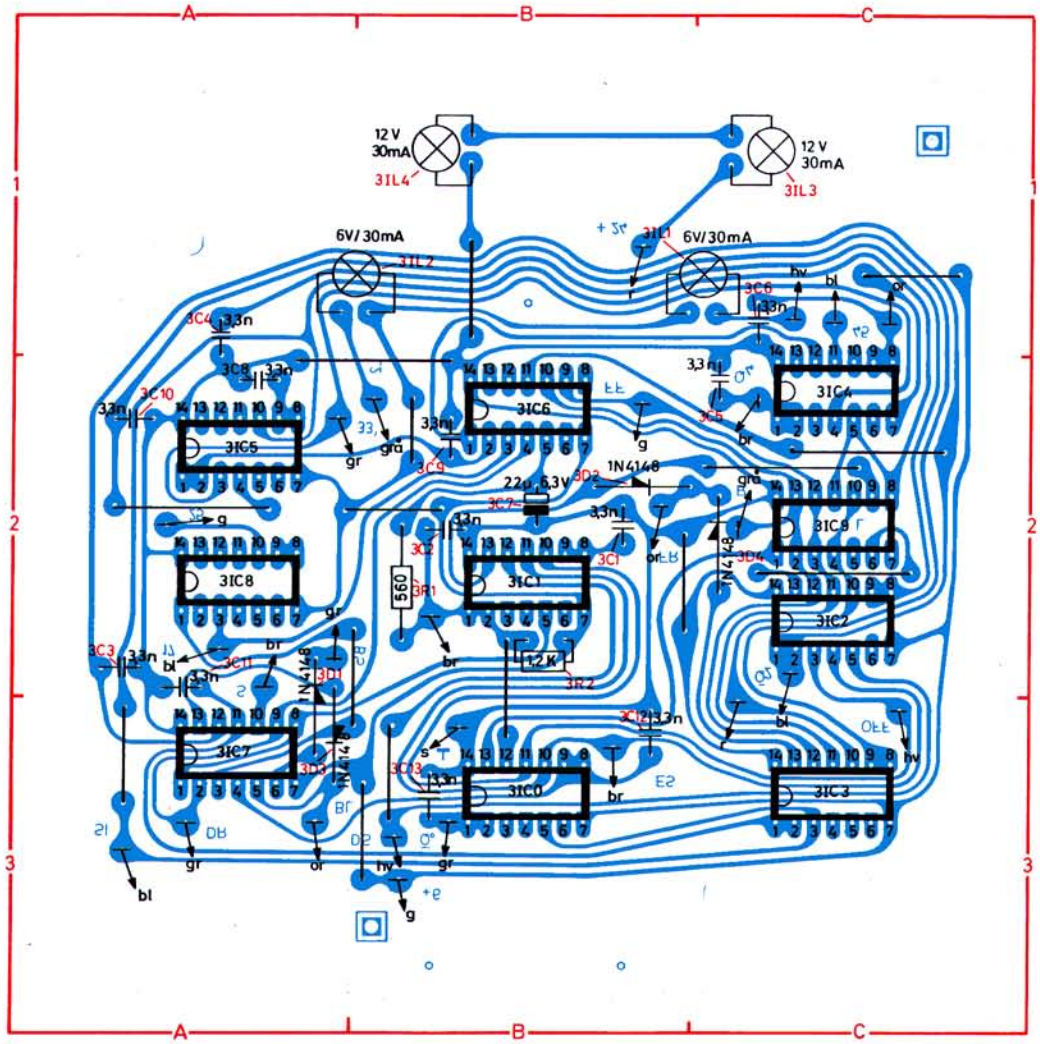
Pos.	Plac.		Index
		C	
6C1	A1	22n, 10 %, 400 V	4130096
		D	
6D1	A1	EM 504, 1N4004	8300102

SET FRA KOMPONENTSIDE / SEEN FROM COMPONENT SIDE / VON DER BAUTEILSEITE AUS GESEHEN

1 PC 8009012

Pos.	Plac.		Index
		R	
1R1	C2	39 k, 5 %, 1/8 W	5010060
1R2	C2	22 k, 5 %, 1/8 W	5010079
1R3	C2	22 k, 5 %, 1/8 W	5010079
1R4	C1	39 k, 5%, 1/8 W	5010060
1R5	B3	180 k, 5 %, 1/8 W	5010072
1R6	C2	33 k, 5 %, 1/8 W	5010075
1R7	C2	2,2 k, 5 %, 1/8 W	5010064
1R8	C3	6,8 k, 5 %, 1/8 W	5010052
1R9	C3	150 k, 5 %, 1/8 W	5010063
1R10	C3	5,6 k, 5 %, 1/8 W	5010041
1R11	C3	56k, 5 %, 1/8 W	5010061
1R12	E1	22 k, 5 %, 1/8 W	5010079
1R13	E2	10 k, 5 %, 1/8 W	5010059
1R14	D2	15 k, 5 %, 1/8 W	5010053
1R15	D2	470 k, 5 %, 1/8 W	5010077
1R16	D2	2,2 k, 5 %, 1/8 W	5010064
1R17	D2	47 k, 5 %, 1/8 W	5010045
1R18	D3	120, 5 %, 1/8 W	5010128
1R19	D2	560, 10 %, 1 W	5002022
1R20	E2	680, 5 %, 1/8 W	5010144
1R21	E2	3,9 k, 5 %, 1/8 W	5010069
1R22	D2	220, 5 %, 1/8 W	5010092
1R23	E3	180, 5 %, 1/8 W	5010362
1R24	E2	33, 5 %, 1/8 W	5010253
1R25	B3	15 k, 5 %, 1/8 W	5010053
1R26	B2	330, 5 %, 1/8 W	5010044
1R27	C2	100 k, 5 %, 1/8 W	5010049
1R28	B3	150, 5 %, 1/8 W	5010057
1R29	B2	6,8, 10 %, 1/2 W	5000111
1R30	B3	15, 5 %, 1/8 W	5010468
1R31	D2	10 k, 5 %, 1/8 W	5010059
1R32	D2	1 k, 5 %, 1/8 W	5010040
1R33	C1	1 M, 5 %, 1/8 W	5010054
1R34	C1	15 k, 5 %, 1/8 W	5010053
1R35	C1	15 k, 5 %, 1/8 W	5010053
1R36	C1	8,2 k, 5 %, 1/8 W	5010154
1R37	D1	15 k, 5 %, 1/8 W	5010053
1R38	D1	150 k, 5 %, 1/8 W	5010063
1R39	D2	39 k, 5 %, 1/8 W	5010060
1R40	D1	4,7 k, 5 %, 1/8 W	5010048
1R41	D2	10 k, 5 %, 1/8 W	5010059
1R42	E1	10 k, 5 %, 1/8 W	5010059
1R43	E1	10 k, 5 %, 1/8 W	5010059
1R44	C1	1,5 k, 5 %, 1/8 W	5010247
1R45	C1	330, 5 %, 1/8 W	5010044
1R46	C1	680, 5 %, 1/8 W	5010144
1R47	C2	27 k, 5 %, 1/8 W	5010141
1R48	C2	12 k, 5 %, 1/8 W	5010046
1R49	C2	15 k, 5 %, 1/8 W	5010053
1R50	B2	10 k, 5 %, 1/8 W	5010059
1R51	A3	330 k, 5 %, 1/8 W	5010117
1R52	A3	6,8 k, 5 %, 1/8 W	5010052
1R53	A3	4,7 k, 5 %, 1/8 W	5010048
1R54	B3	3,9 k, 5 %, 1/8 W	5010069
1R55	A2	1 k, 5 %, 1/8 W	5010040
1R56	B2	10 k, 5 %, 1/8 W	5010059
1R57	A3	6,8 k, 5 %, 1/8 W	5010052
1R58	A3	10 k, 5 %, 1/8 W	5010059
1R59	B3	68 k, 5 %, 1/8 W	5010062
1R60	A2	100 k, 5 %, 1/8 W	5010049
1R61	A2	100 k, 5 %, 1/8 W	5010049
1R62	B2	68 k, 5 %, 1/8 W	5010062
1R63	B2	6,8 k, 5 %, 1/8 W	5010052
1R64	B2	10 k, 5 %, 1/8 W	5010059
1R65	A2	10 k, 5 %, 1/8 W	5010059
		VR	
1VR1	E1	50 k, 20 %	5370061
1VR2	E2	4,7 k, 20 %	5370058
1VR3	E1	4,7 k, 20 %	5370058
1VR4	E1	50 k, 20 %	5370061
1VR5	E1	2 k, 20 %	5370006
1VR6	E1	2k, 20 %	5370006
		C	
1C 1	C2	0,47 µ, 250 V, 10 %	4130029
1C 2	D2	2,2 µ, 35 V	4201069
1C 3	D2	220 µ, 16 V	4200097
1C 4	D3	0,47 µ, 250 V, 10 %	4130029
1C 5	E2	10 n, 250 V, 20 %	4130081
1C 6	E2	220 µ, 16 V	4200097
1C 7	E2	220 µ, 16 V	4200097
1C 8	E2	470 µ, 6 V	4200109
1C 9	B1	2,2 µ, 35 V	4201069
1C10	D1	0,1 µ, 250 V, 20 %	4130075
1C11	D1	0,1 µ, 250 V, 20 %	4130075
1C12	D1	0,22 µ, 250 V, 20 %	4130082
1C13	D1	47 n, 250 V, 20 %	4130078
1C14	D1	220 µ, 16 V	4200097
1C15	C2	10 µ, 6 V	4200101
1C16	C2	22 µ, 6 V	4200218
1C17	B2	0,1 µ, 35 V	4200169
1C18	A3	4,7 µ, 25 V	4200108
1C19	A2	2,2 µ, 35 V	4201069
		RL	
1RL1	D1	24 V	7600007
		IL	
1IL1	C3	6 V, 30 mA	8230041
		D	
1D 1	B3	1N4148, SFD 184	8300058
1D 2	E2	1N4148, SFD 184	8300058
1D 3	B3	1N4148, SFD 184	8300058
1D 4	A3	OA90	8300009
1D 5	A3	OA90	8300009
1D 6	A3	OA90	8300009
1D 7	A3	1N4148, SFD 184	8300058
1D 8	A3	1N4148, SFD 184	8300058
1D 9	A3	1N4148, SFD 184	8300058
1D10	A2	1N4148, SFD 184	8300058
1D11	A2	1N4148, SFD 184	8300058
1D12	A2	1N4148, SFD 184	8300058
1D13	A2	1N4148, SFD 184	8300058
1D14	A2	1N4148, SFD 184	8300058
1D15	B2	OA90	8300009
1D16	B2	OA90	8300009
1D17	B2	1N4148, SFD 184	8300058
1D18	A3	1N4148, SFD 184	8300058
1D19	B3	1N4148, SFD 184	8300058
		TR	
1TR 1	C1	8320095	
1TR 2	B1	8320095	
1TR 3	C1	8320095	
1TR 4	C1	8320095	
1TR 5	B2	8320095	
1TR 6	B2	8320097	
1TR 7	D2	8320161	
1TR 8	D2	8320232	
1TR 9	E2	8320232	
1TR10	B3	8320095	

3 PC 8009015



SET FRA KOMPONENTSIDE / SEEN FROM COMPONENT SIDE / VON DER BAUTEILSEITE AUS GESEHEN

3 PC 8009015

Pos.	Plac.		Index
		R	
3R 1	B2	560, 5 %, 1/8 W	5010067
3R 2	B2	1,2 k, 5 %, 1/8 W	5010153
		C	
3C 1	B2	3,3 n, 100 V, 10 %	4011025
3C 2	B2	3,3 n, 100 V, 10 %	4011025
3C 3	A2	3,3 n, 100 V, 10 %	4011025
3C 4	A1	3,3 n, 100 V, 10 %	4011025
3C 5	C2	3,3 n, 100 V, 10 %	4011025
3C 6	C1	3,3 n, 100 V, 10 %	4011025
3C 7	B2	22 µ/6,3 V	4200218
3C 8	A2	3,3 n, 100 V, 10 %	4011025
3C 9	B2	3,3 n, 100 V, 10 %	4011025
3C10	A2	3,3 n, 100 V, 10 %	4011025
3C11	A2	3,3 n, 100 V, 10 %	4011025
3C12	B3	3,3 n, 100 V, 10 %	4011025
3C13	B3	3,3 n, 100 V, 10 %	4011025
		D	
3D 1	A2	1N4148, SFD 184	8300058
3D 2	B2	1N4148, SFD 184	8300058
3D 3	A3	1N4148, SFD 184	8300058
3D 4	C2	1N4148, SFD 184	8300058

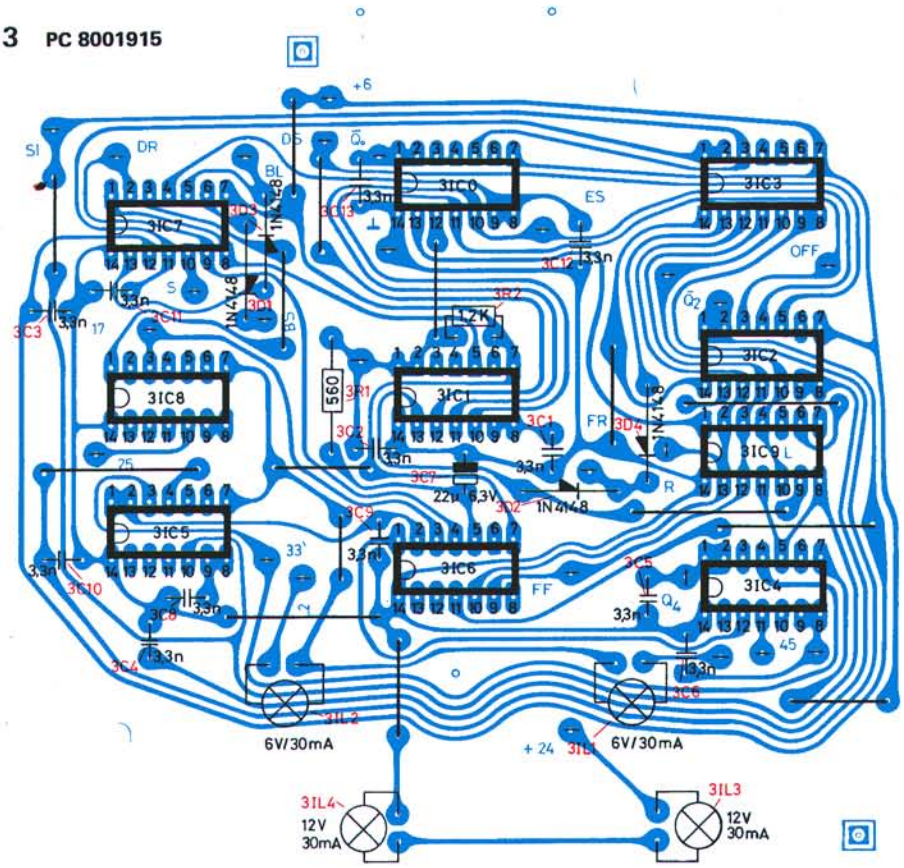
		IC	
3IC0	B3	FCH131	8340013
3IC1	B2	FCH131	8340013
3IC2	C2	FCH131	8340013
3IC3	C3	FCH131	8340013
3IC4	C2	FCH131	8340013
3IC5	A2	FCH131	8340013
3IC6	B2	FCH111	8340012
3IC7	A3	FCH131	8340013
3IC8	A2	FCH131	8340013
3IC9	C2	FCY101	8340011
		IL	
3IL1	B1	6 V, 30 mA	8230041
3IL2	B1	6 V, 30 mA	8230041
3IL3	C1	12 V, 30 mA	8230040
2IL4	B1	12 V, 30 mA	8230040

BEOGRAM 4000, TYPE 5215

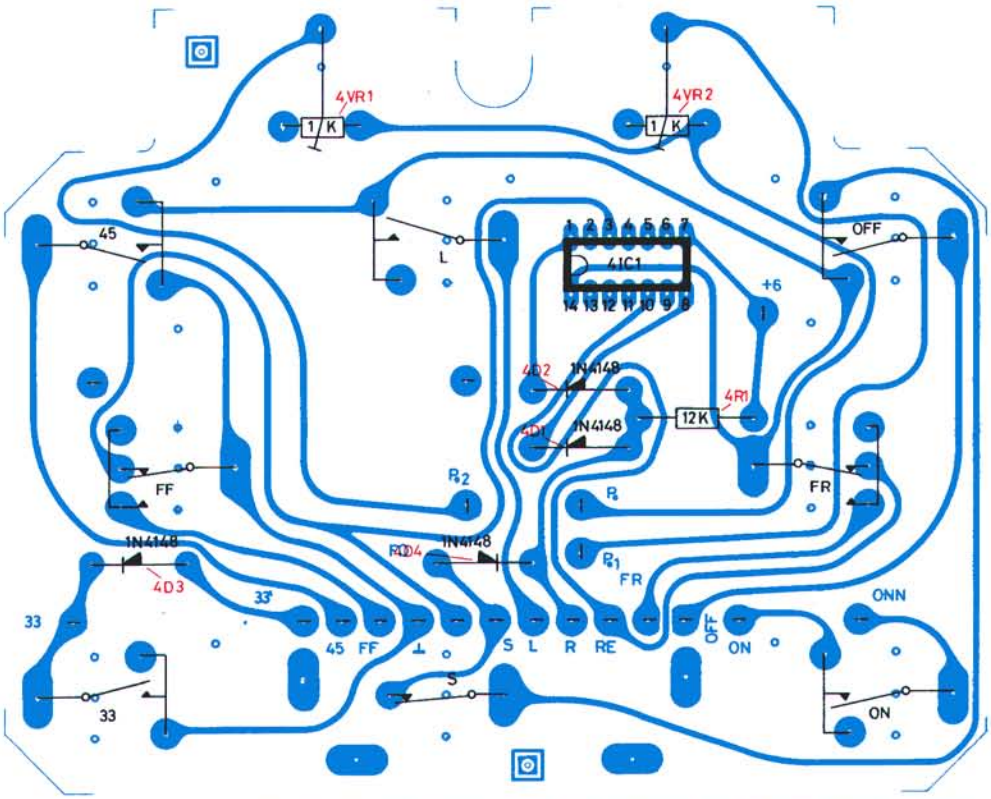
Correct on page 3-8

3IL3	C1	24V/25mA	8230044
3IL4	B1	24V/25mA	8230044

3 PC 8001915

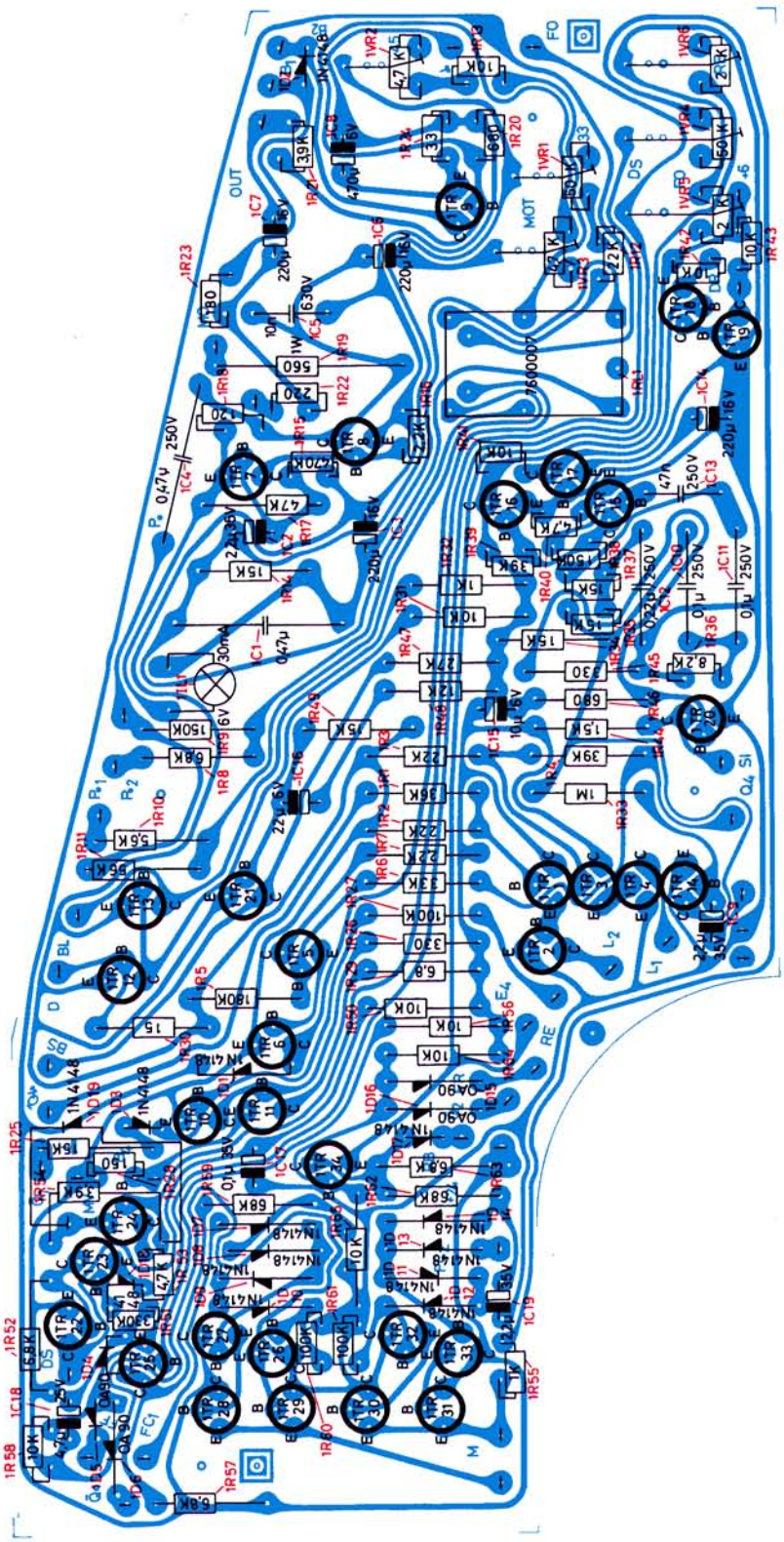


4 PC 8009016



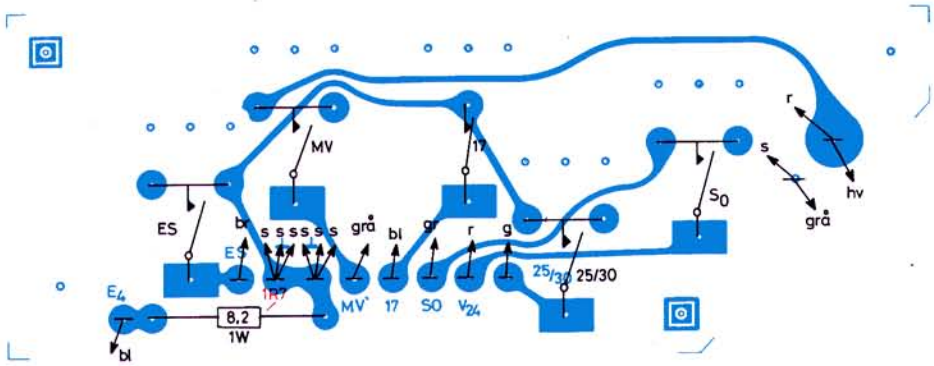
SET FRA PRINTSIDE / SEEN FROM CONDUCTOR SIDE / VON DER LEITERSEITE AUS GESEHEN

1 PC 8009012

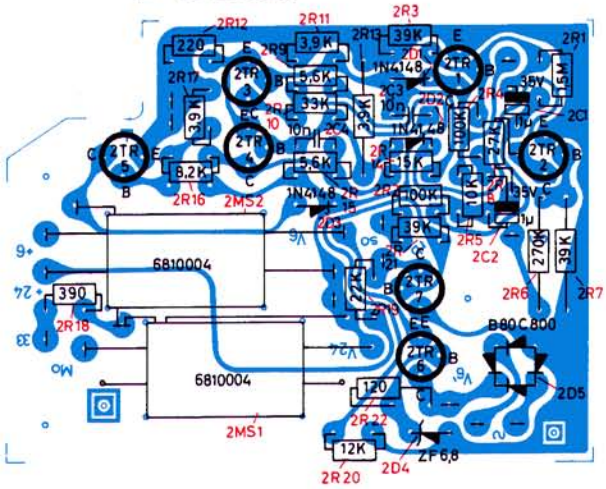


SET FRA PRINTSIDE / SEEN FROM CONDUCTOR SIDE / VON DER LEITERSEITE AUS GESEHEN

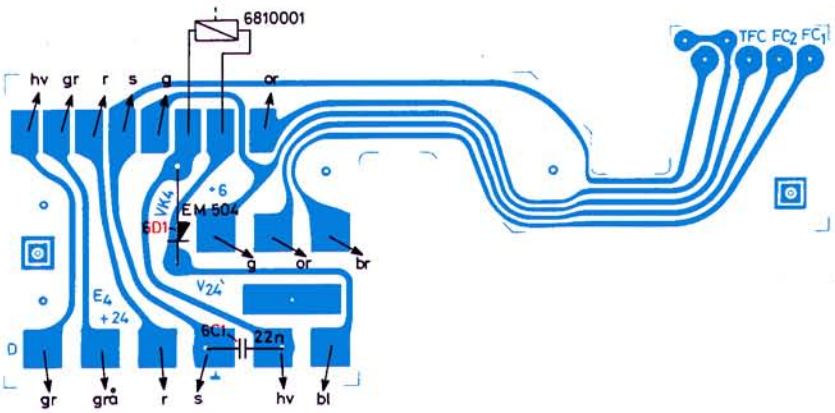
7 PC 8009010



2 PC 8009011



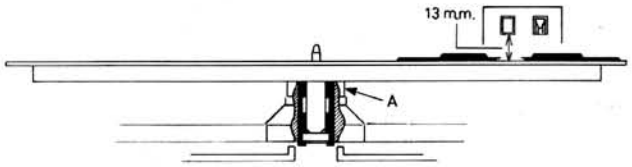
6 PC 8009019



SET FRA PRINTSIDE / SEEN FROM CONDUCTOR SIDE / VON DER LEITERSEITE AUS GESEHEN

MECHANICAL ADJUSTMENTS

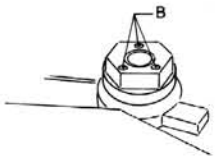
Height Adjustment of Turntable



Loosen nut A at the turntable bearing and adjust the height of the bearing so that the spacing between the turntable and the detector arm is 13 mm.

Tighten nut A lightly.

Vertical Adjustment of Turntable Bearing



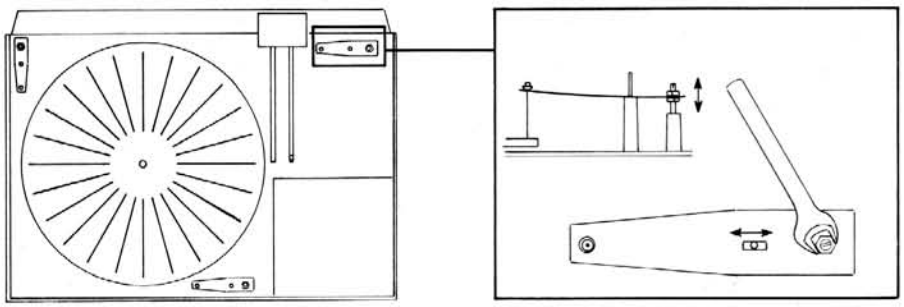
Turn the transit screws to lock the floating chassis.

With screws B adjust the turntable bearing so that it is at right angles to the chassis – in other words so that the turntable surface is parallel with the cover plate.

Check height adjustment (13 mm) at both the rim and centre of the turntable.

Height and Side Adjustment of Chassis

Loosen transit screws so that chassis floats freely.

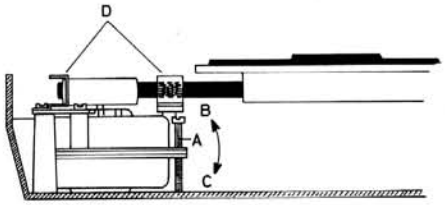


With the suspension springs adjust the chassis so that the turntable is flush with the cover plate and so that the chassis is centered with respect to the transit screws.

Also slide the springs backwards and forwards to locate the turntable centrally in the cutout in the cover plate.

To make this adjustment loosen the top nuts and thereafter adjust the screw to the desired height and slide the springs to the desired position. Thereafter retighten the nuts.

Adjustment of Belt Drive



Adjust the belt so that it runs on the middle of the pulley and the belt face on the turntable.

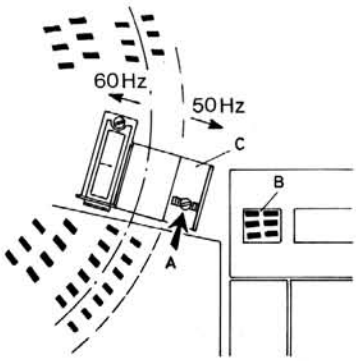
To shift the belt farther down on the pulley, turn screw A so that the motor tilts in the direction of arrow B.

To shift the belt farther upwards, loosen screw A and bend the motor suspension in the direction of arrow C. Thereafter tighten screw A until the belt runs on the middle of the pulley.

Adjust belt guides D so that they prevent the belt from running upwards or downwards off the pulley and so that they do not touch the belt during operation.

NOTE: The belt must be placed so that its ground (rough) side faces the pulley and turntable.

Adjustment of Stroboscope



Loosen screw A.

Adjust bracket C with the mirror so that the stroboscope image is located in the middle of the field of vision.

Tighten screw A.

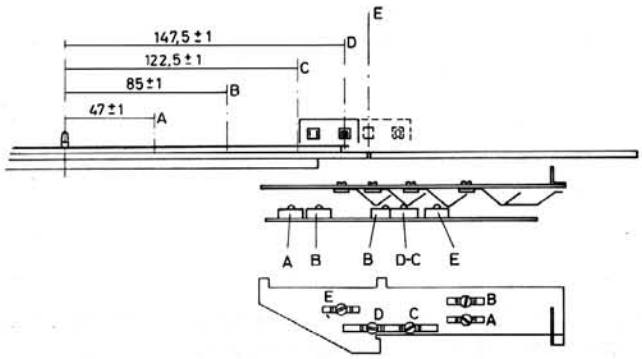
NOTE: The two outer rows are for 50 Hz and the two inner ones are for 60 Hz.

Adjustment of Slide Contact Springs

Height

Adjust all contact springs so that they only just actuate the contacts but also so that they do not jam against the contact pins, thus obstructing the slide transport.

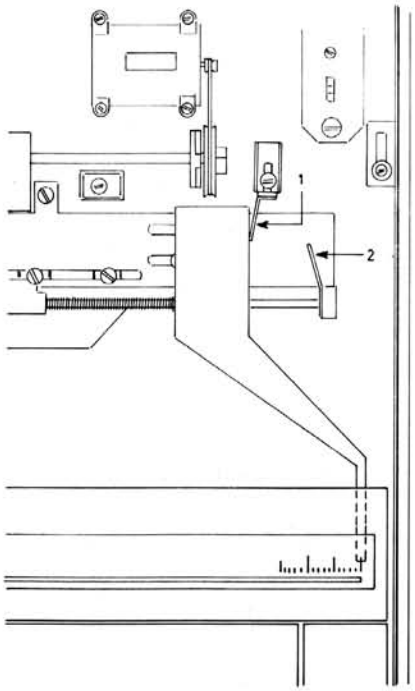
Placement



Adjust the horizontal placement of the springs so that, during slide transport, they will actuate their respective contacts when the pickup is spaced from the middle of the record spindle by the amount indicated in the sketch.

To adjust, loosen the screws holding the single spring and slide it in the oblong hole.

Adjustment of Dial Pointer



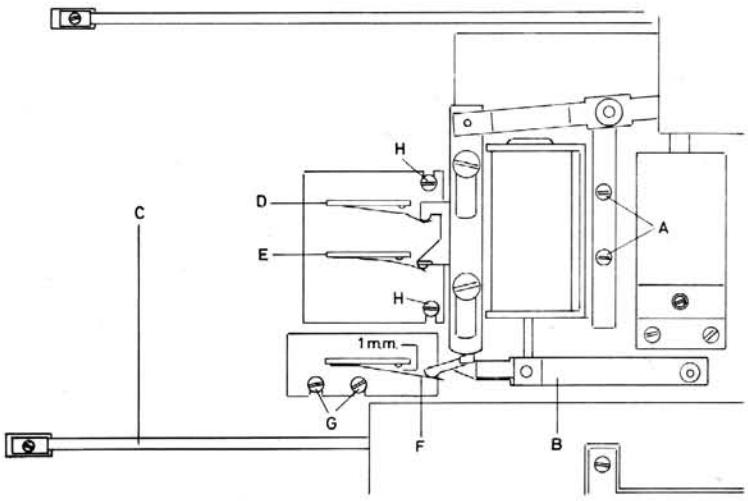
Zero Adjustment

Zero adjustment is performed by bending the tag 1 with the slide in its extreme right-hand position.

Start Adjustment

Adjust (bend) angle 2 so that the pointer begins to move away from "0" when the pickup lowers into the first groove of a 30 cm record.

Adjustment of Magnet Coil System



Magnet Coil

Loosen screws A.
Slide the magnet coil to the place where the arm B is parallel with tie-bar C when the magnet coil armature has been pulled home.

Tighten screws A.

Contacts F

Contacts F, which cut in the power limiter circuit, should be adjusted so that they are spaced 0.5 - 1, with the magnet coil armature pulled home.

To adjust, loosen screws G.

Contacts D and E

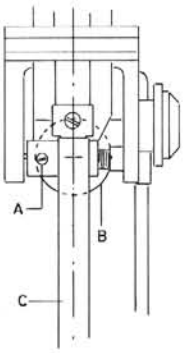
Contacts F and G should be adjusted so that the contact functions are not performed until the pickup stylus is in contact with the record but on the other hand as quickly as possible after the stylus hits the record.

Moreover, contacts E, of the duplex type, should be adjusted so that the upper contacts break first and the lower ones immediately afterwards.

Contacts D turn on the servo mechanism. Contacts E connect the pickup signal leads together and short-circuit them.

Adjustment of Pickup Arm System

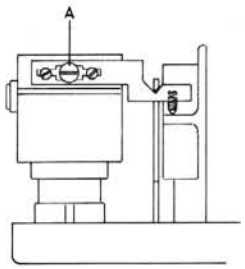
Horizontal Placement (Fixing)



Place the pickup arm in a bearing frame so that the centre line C of the pickup arm is located on the centre line of the shaft B with an accuracy of ± 0.2 mm.

To make the adjustment, loosen screw A and slide the pickup arm in one direction or the other, thereafter retightening screw A.

Static Balance

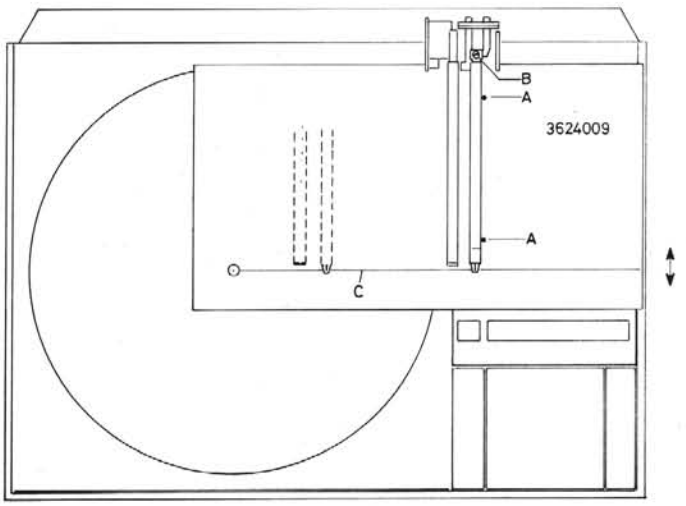


Set stylus adjustment to "0".

Release pickup arm from lifting arm.

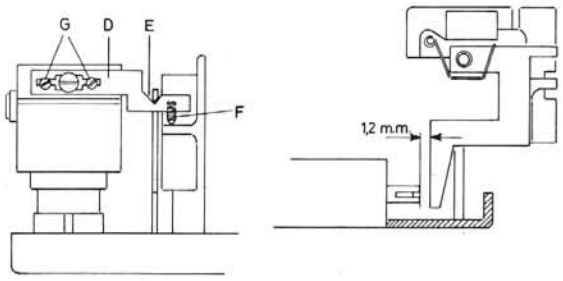
Adjust screw A until balance is obtained in the system.

Length, Height and Parallel Adjustment



Adjust stylus force to 1 gr. Take off turntable. Run pickup arm in towards the centre.

Mount tool 3624009 on the Beogram 4000 as shown by sketch. Run pickup arm out close to pins A. Lower pickup on to tool. Slide tool backwards or forwards so that stylus drops into groove C. Keep tool fixed in this position. Raise pickup and run it towards the centre. Lower pickup into the position shown in the sketch. If the stylus hits outside groove C, adjust screw B so that the deviation in question is halved. Run the pickup arm all the way out close to pins A. At this point lower the pickup and slide tool 3624009 so that the stylus is exactly in groove C. Raise the arm and now check if the arm is equally spaced from the pins A. Also make sure that the lifting arm rests in the bottom of the V-notch E on the arm D.



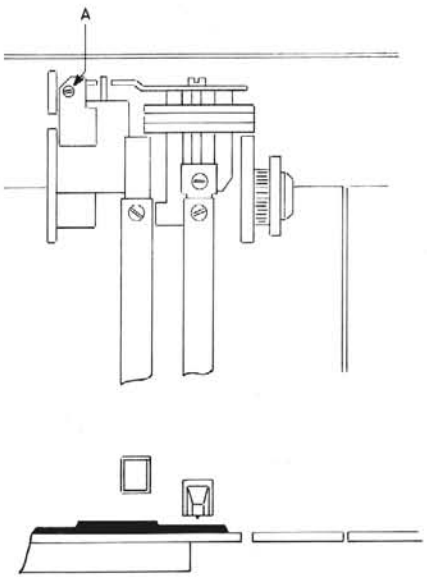
If the pickup arm is not parallel with the line between pins A, loosen screws G and slide arm D backwards or forwards until parallelism has been accomplished (the lifting arm must be in the bottom of the V-notch during this adjustment).

NOTE: Length adjustment of the pickup arm should be checked after adjustment of the arm D.

Adjust screw F so that the arm is horizontal (reference to detector arm) and so that the lifting arm is spaced 1.2 mm ± 0.3 mm from the damper cylinder as shown by the sketch. It may be necessary to tilt the arm D when making this adjustment.

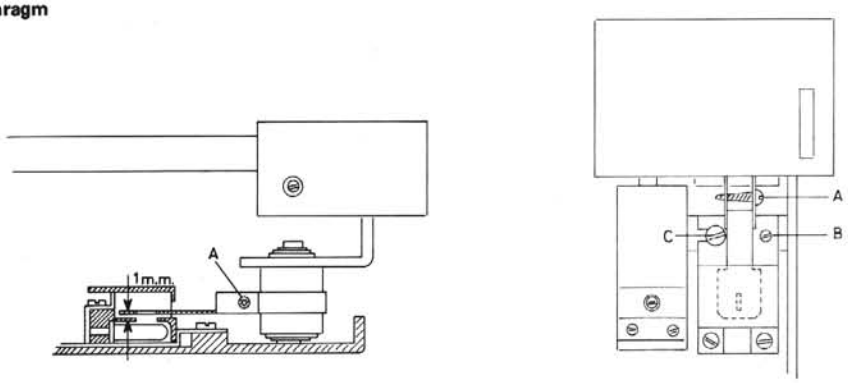
NOTE: If the arm D is to be tilted, the parallel adjustment of the pickup arm must be checked and repeated if necessary. Check static balance and readjust if necessary.

Lowering (Depth) Adjustment



Adjust screw A with the pickup arm lowered so that the stylus clears the low portions of the turntable ribs (by approx. 0.5 mm).

Adjustment of Diaphragm



The diaphragm is adjusted by loosening screw A and turning and sliding it on the arm bearing.

Adjustment should be made so that the 1 mm spacing shown is complied with and so that the diaphragm arm becomes parallel with the pickup arm.

Fine adjustment of the diaphragm is performed with a record placed on the turntable and the drive belt removed.

1: Run arm in over record.

2: Lower pickup.

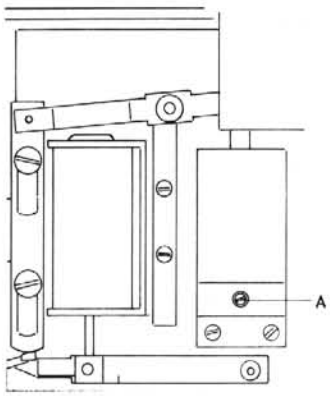
3: Turn turntable by hand, checking that first operation of servo system occurs after 4 ± 1 turns and thereafter at every turn.

4: If the servo system does not operate within 4 ± 1 turns, loosen screw C and adjust eccentric B. Thereafter raise the arm and repeat items 2 - 4.

5: After adjustment of eccentric B, screw C should be tightened.

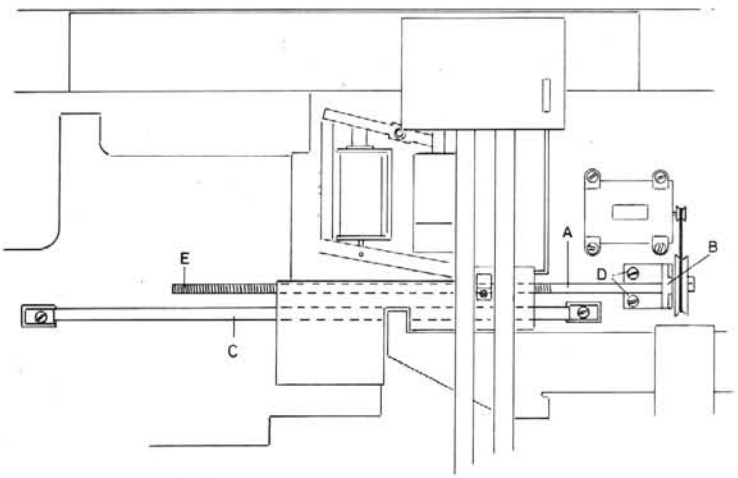
6: Make sure that the servo system does not regulate backwards until after the turntable has turned at least 10 cm backwards from the forwards regulation. To make adjustment if necessary, correct the spacing (1 mm) between the diaphragm and the photoresistor.

Adjustment of Damper Cylinder



Adjust valve A so that pickup lowers in between 1 and 1.5 sec.

Adjustment of Spindle



Adjust spindle A so that it is parallel with tie-bar C.

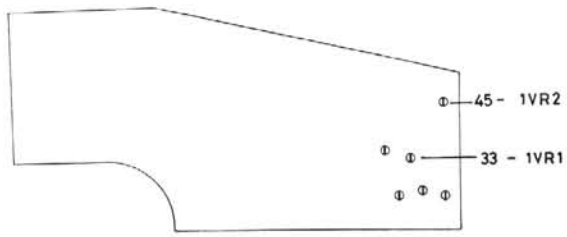
To adjust, loosen screws D and turn cap B.

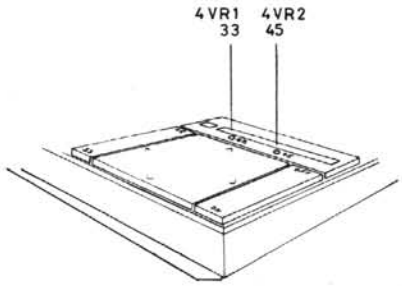
Best parallelism is obtained when spindle A has minimum eccentricity at E during operation.

ELECTRICAL ADJUSTMENTS

Remove Beogram 4000 cover plates (see Disassembly).

Speed Adjustment

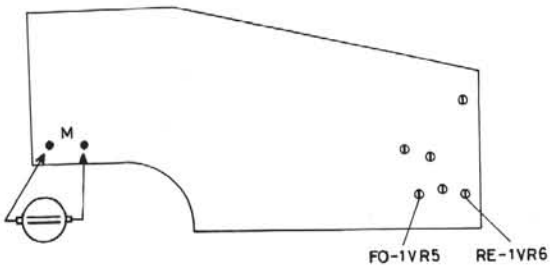


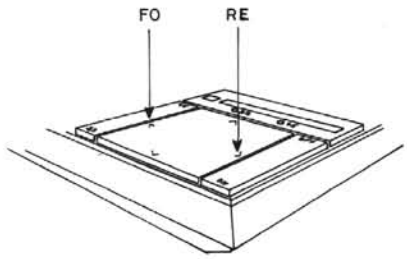


Connect the instrument to the mains. Press On and thereafter LIFT so that the pickup arm is stationary and the turntable is rotating.

Set 33 r.p.m. potentiometer 4VR1 at mid-scale. Adjust 33 r.p.m. potentiometer 1VR1 so that 33 r.p.m. stroboscope dial appears to be standing still.
Set 45 r.p.m. potentiometer 4VR2 at mid-scale. Adjust 45 r.p.m. potentiometer 1VR2 so that 45 r.p.m. stroboscope dial appears to be standing still.

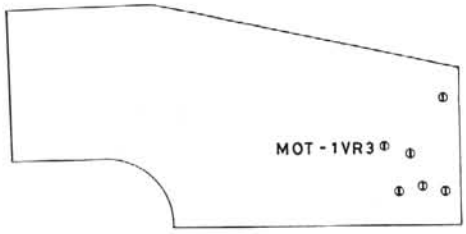
Adjustment of Slow Slide Transport

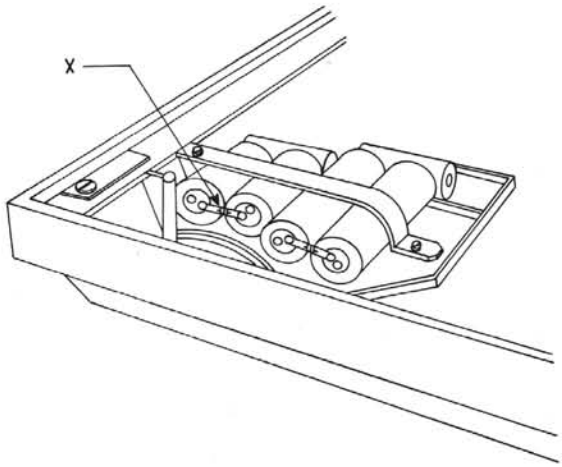




Connect a vacuum-tube voltmeter across the DC motor at M. Set vacuum-tube voltmeter at mid-scale and switch to 10-volt range. Applying light pressure to the in-transport panel (FO), adjust 1VR5 (FO) until the vacuum-tube voltmeter reads between 2.5 and 3.0 volts Adjust 1VR6 (RE) so that a similar reading in the opposite direction is obtained when the transport panel (RE) is pressed lightly.

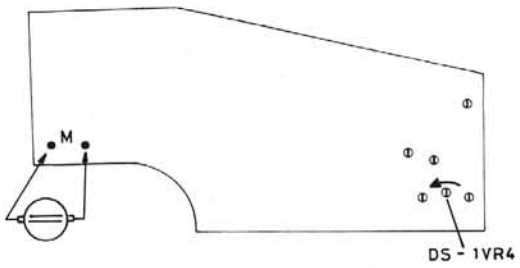
Adjustment of Voltage for Drive Motor





Connect AF voltmeter and oscilloscope at point X so that measurement is made with respect to chassis (0).
In the 33 r.p.m. position, adjust potentiometer 1VR3 for maximum voltage though not more than 6.5 volts r.m.s. or approx. 18 volts p-p and so that distortion does not occur.

Adjustment of Differential Stop



Connect oscilloscope with disabled D-deflection across the motor at M.

Run the slide in so that MV contacts are operated.

Lower the arm before the run-off groove is reached on a 17 cm record.

Adjust potentiometer 1VR4 so that the stop releases when motor voltage is 1.8 volts.

Thereafter make sure that the stop releases on a 30 cm record.

LUBRICATION

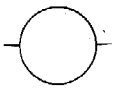
The need for relubrication is very little. The instructions below should be followed for overhauls and replacement of important mechanical parts.

Bearing for arm 195 Bearing for arm 198 Bearing for arm 205 Spindle 224 Bearing for turntable 100	Everyman oil 3984211
Damper cylinder 255	Dow corning 200 fluid 3984214
Spring 192 Spring 199 Shaft 60 Bearing for spindle 122 Shaft for position giver 227 Under pointer 229	Beacon Q 3984210

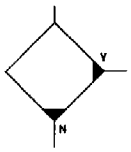
FAULT-FINDING SYSTEMATICS

Testing and Fault-finding Diagram

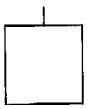
The diagram is composed by means of four symbols.



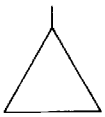
A circle denotes an activity that must be carried out in order for the test to continue.



A square standing on end contains a question that must be answered with yes or no, thereafter continuing in the direction of the answer, Y or N.

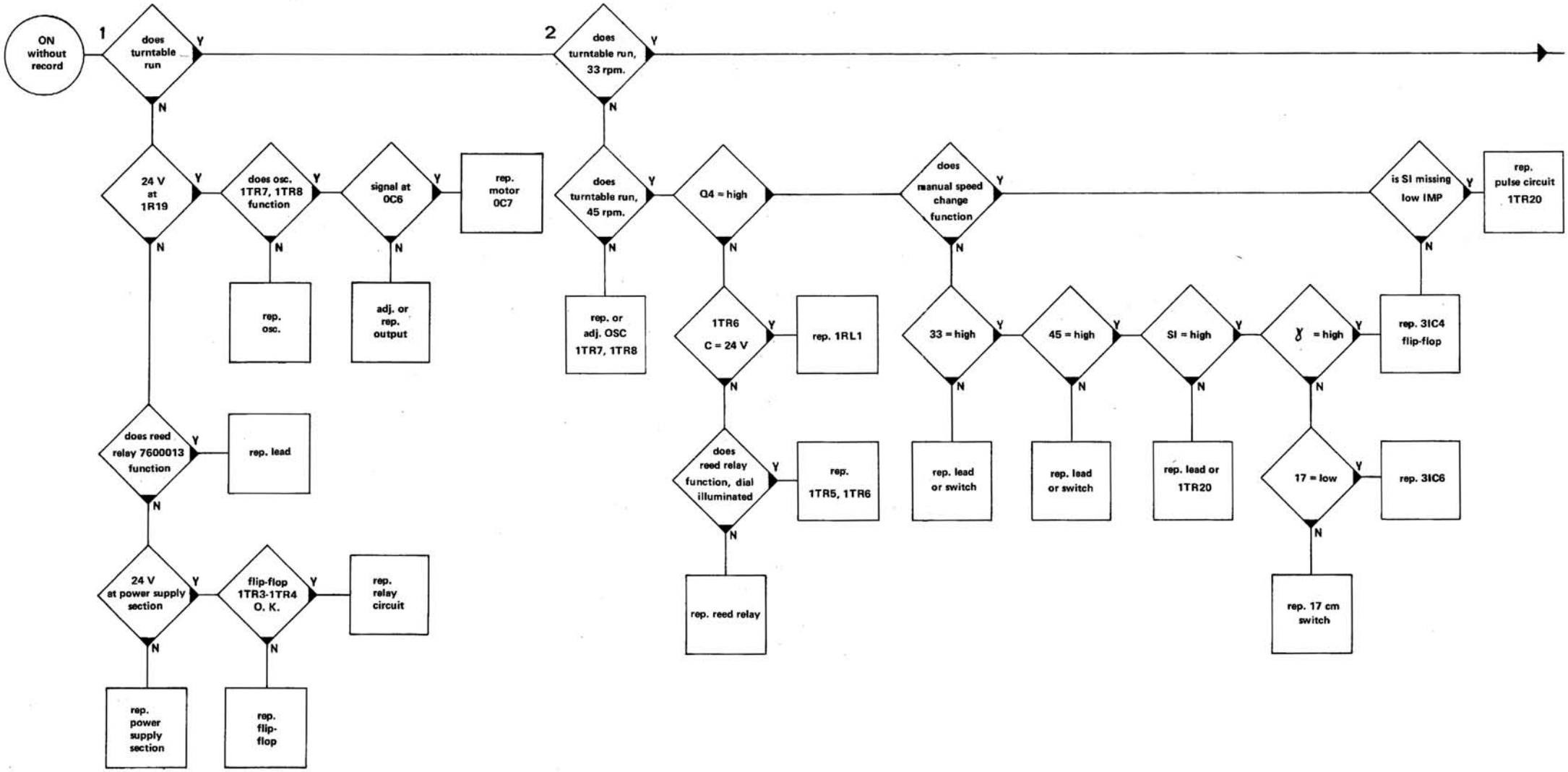


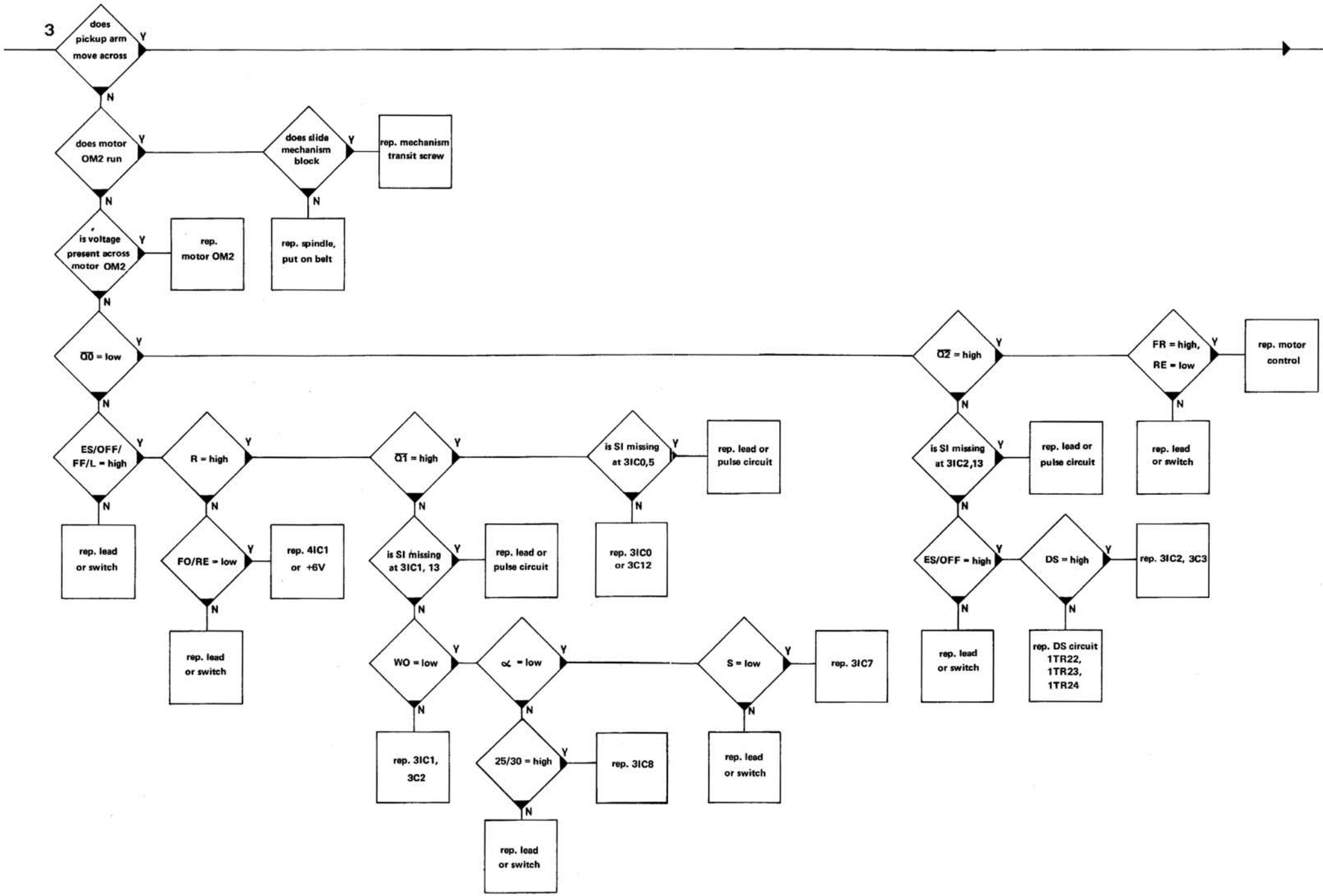
This square gives the designations of the main components of the circuit to be repaired.

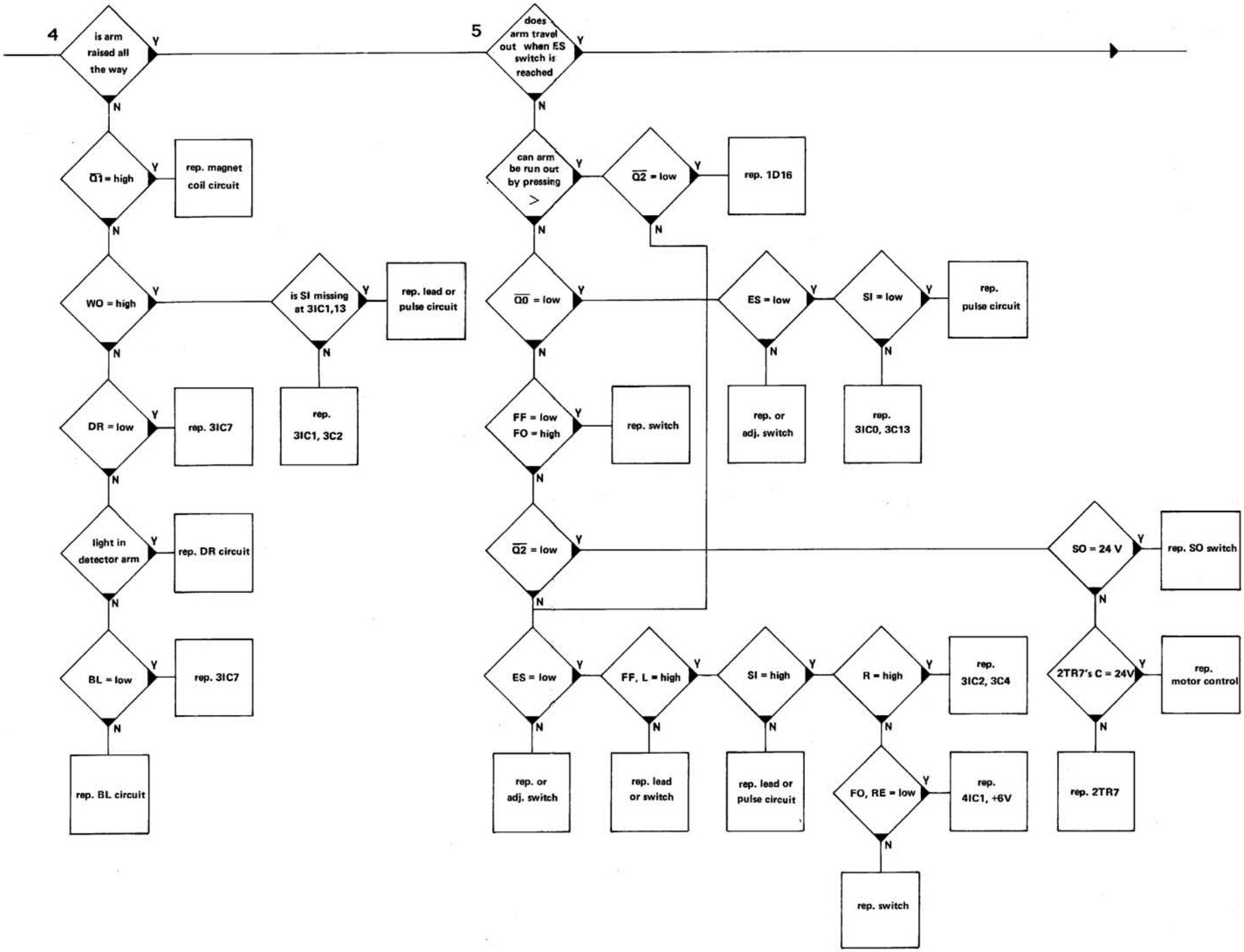


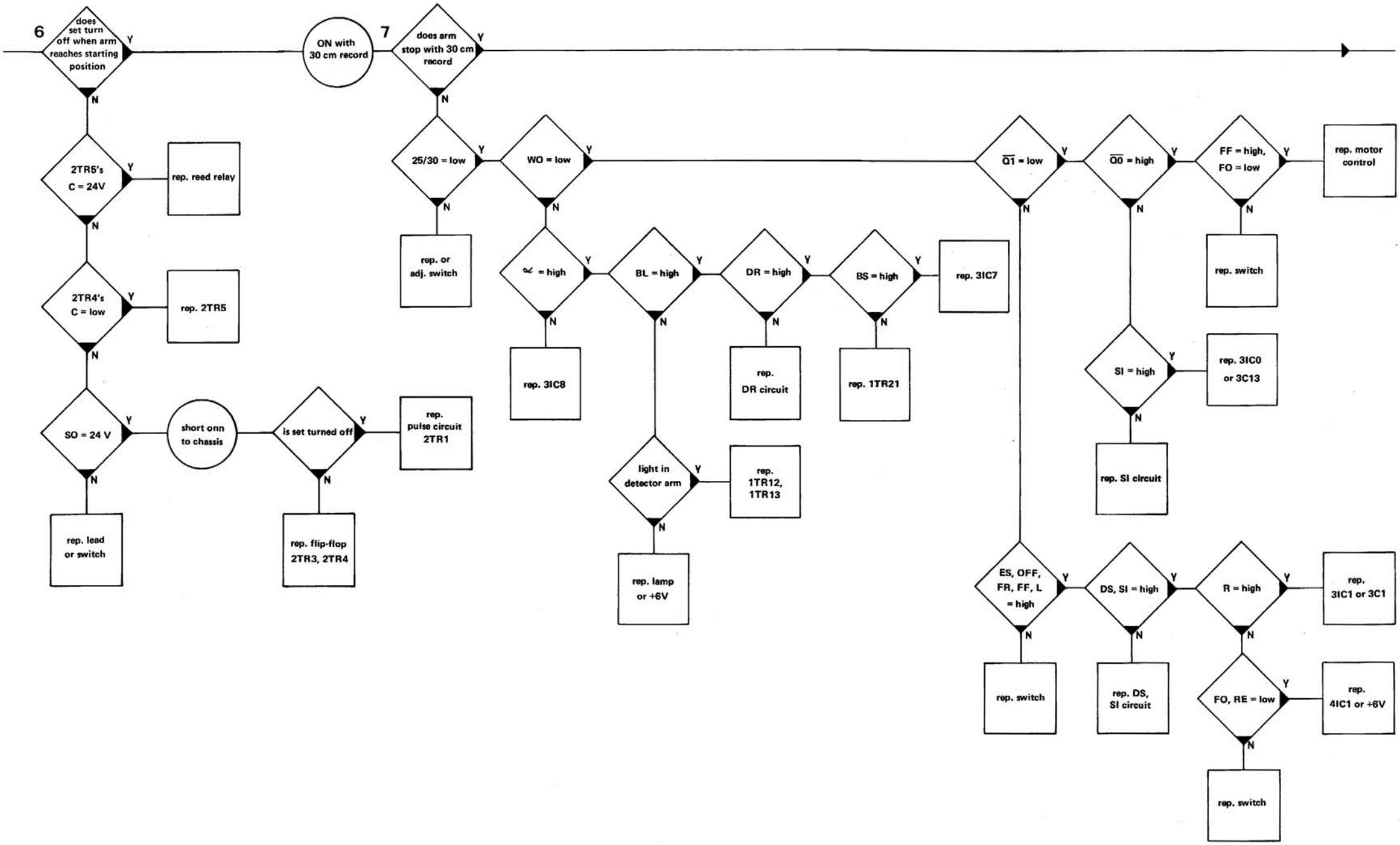
A triangle refers to a previous section.
The question in the preceding square is found in the section to which reference is made, thereafter continuing in the direction of Y or N.

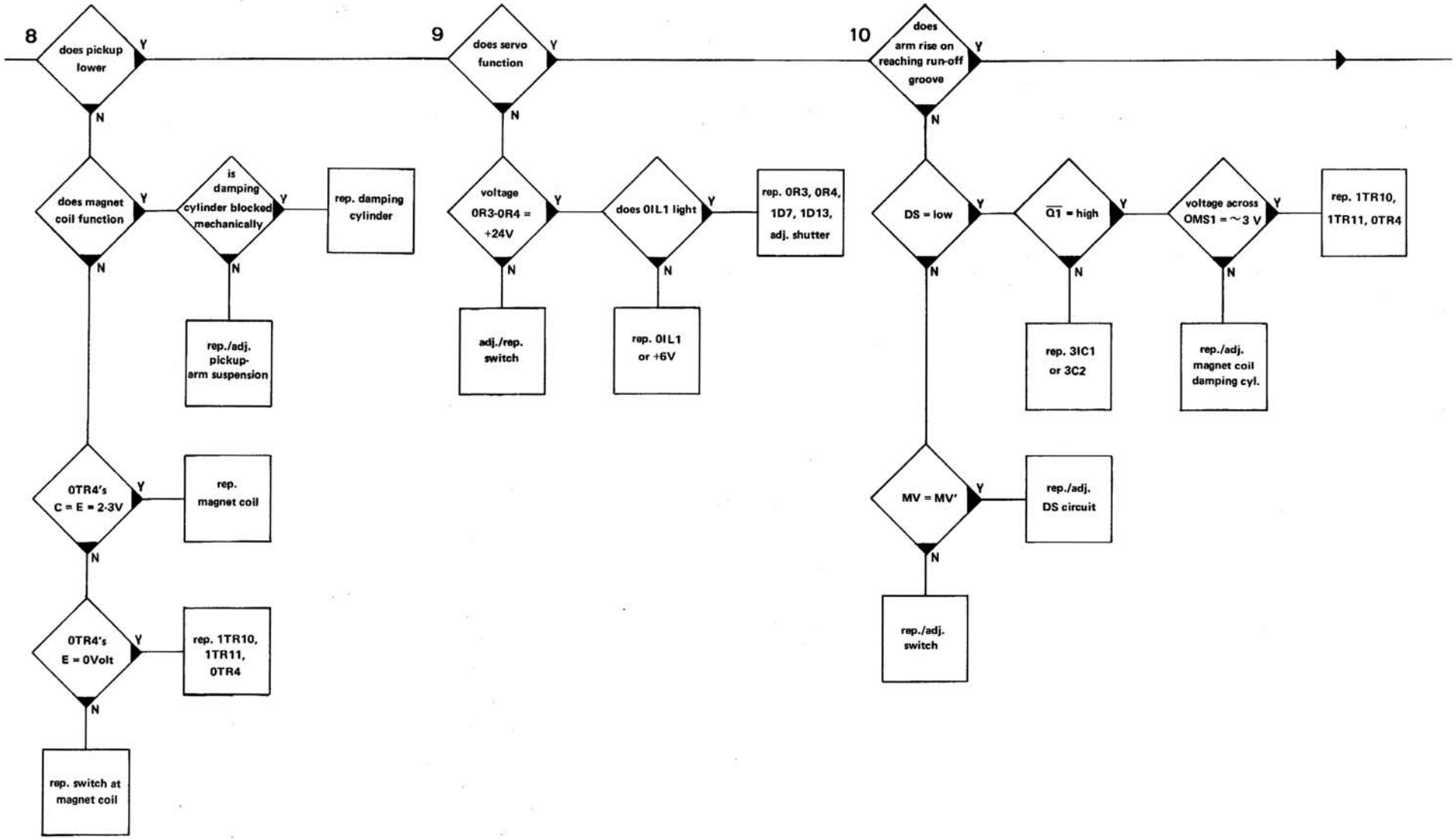
If the top horizontal line can be traced without encountering a no-answer, the controlling fonctions of the set will be O. K.

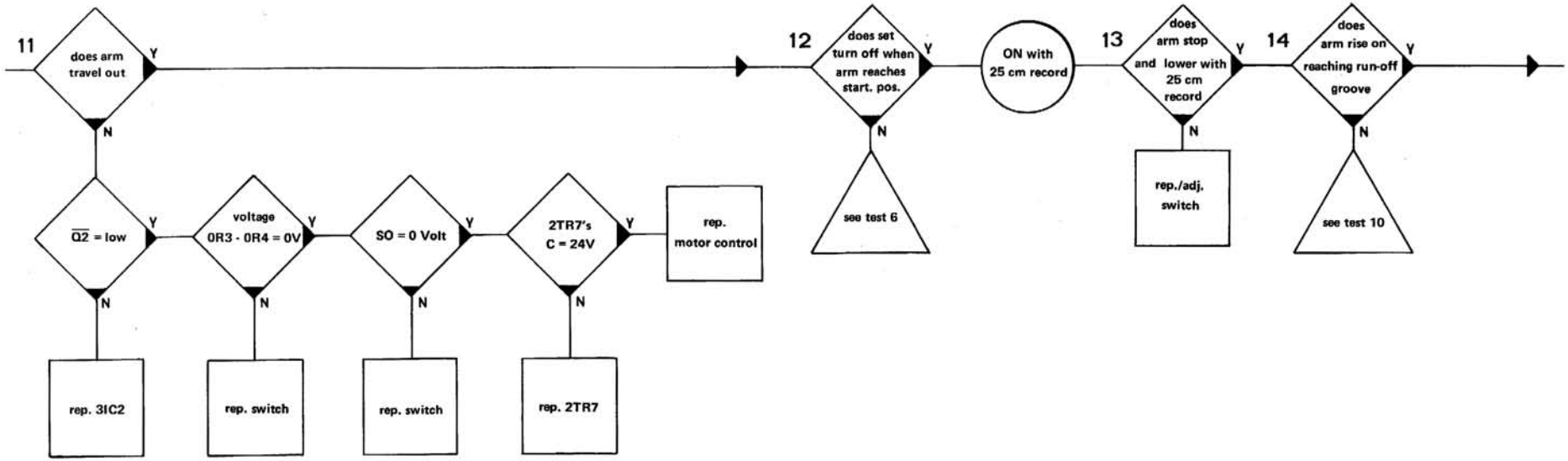

ON without record
1
does turntable run
Y
N
24 V at 1R19
does osc. 1TR7, 1TR8 function
signal at 0C6
rep. motor 0C7
rep. osc.
adj. or rep. output
does reed relay 7600013 function
rep. lead
24 V at power supply section
flip-flop 1TR3-1TR4 O. K.
rep. relay circuit
rep. power supply section
rep. flip-flop
2
does turntable run, 33 rpm.
does turntable run, 45 rpm.
rep. or adj. OSC 1TR7, 1TR8
Q4 = high
1TR6 C = 24 V
rep. 1RL1
does reed relay function, dial illuminated
rep. 1TR5, 1TR6
rep. reed relay
does manual speed change function
33 = high
45 = high
SI = high
γ = high
rep. lead or switch
rep. lead or switch
rep. lead or 1TR20
17 = low
rep. 17 cm switch
is SI missing low IMP
rep. pulse circuit 1TR20
rep. 3IC4 flip-flop
rep. 3IC6

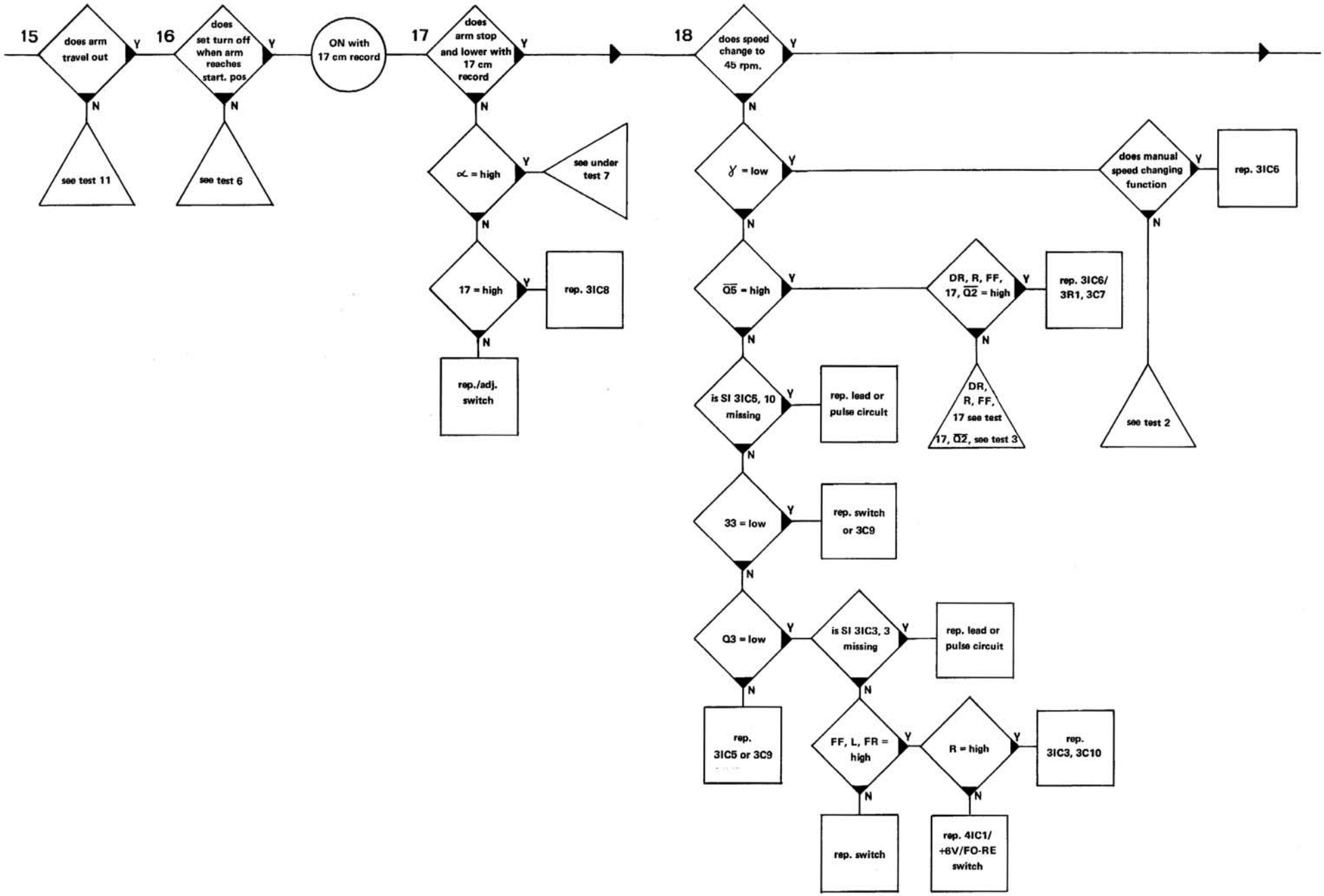

3
does pickup arm move across
does motor OM2 run
does slide mechanism block
rep. mechanism transit screw
is voltage present across motor OM2
rep. motor OM2
rep. spindle, put on belt
Q0 = low
ES/OFF/ FF/L = high
rep. lead or switch
R = high
FO/RE = low
rep. 4IC1 or +6V
rep. lead or switch
Q1 = high
is SI missing at 3IC0,5
rep. lead or pulse circuit
rep. 3IC0 or 3C12
is SI missing at 3IC1, 13
rep. lead or pulse circuit
WO = low
rep. 3IC1, 3C2
∝ = low
25/30 = high
rep. 3IC8
rep. lead or switch
S = low
rep. 3IC7
rep. lead or switch
Q2 = high
is SI missing at 3IC2,13
rep. lead or pulse circuit
ES/OFF = high
rep. lead or switch
DS = high
rep. DS circuit 1TR22, 1TR23, 1TR24
rep. 3IC2, 3C3
FR = high, RE = low
rep. lead or switch
rep. motor control

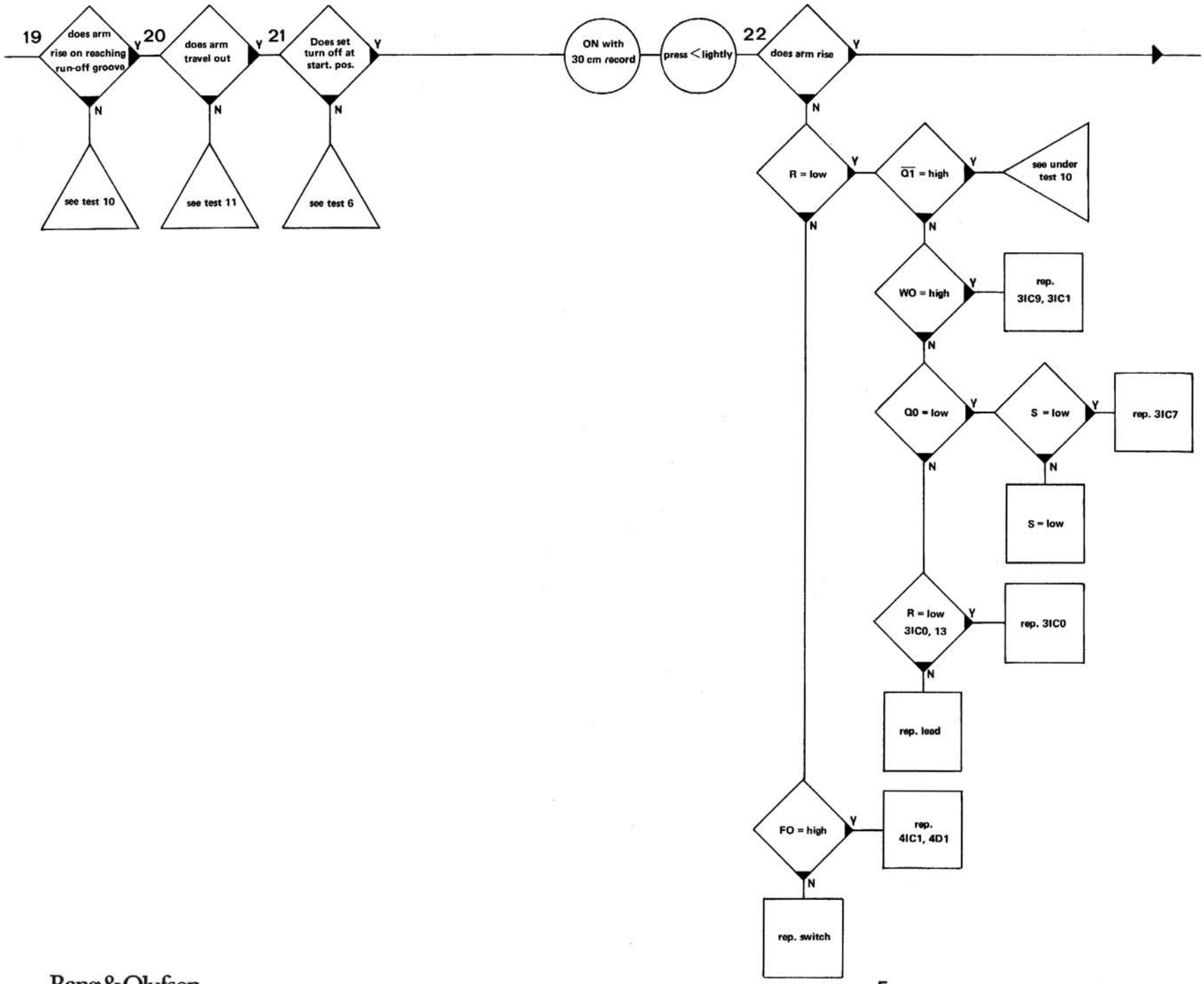

4
is arm raised all the way
Y
N
Q1 = high
rep. magnet coil circuit
WO = high
is SI missing at 3IC1,13
rep. lead or pulse circuit
rep. 3IC1, 3C2
DR = low
rep. 3IC7
light in detector arm
rep. DR circuit
BL = low
rep. 3IC7
rep. BL circuit
5
does arm travel out when ES switch is reached
can arm be run out by pressing >
Q2 = low
rep. 1D16
Q0 = low
ES = low
SI = low
rep. pulse circuit
rep. or adj. switch
rep. 3IC0, 3C13
FF = low
FO = high
rep. switch
Q2 = low
SO = 24 V
rep. SO switch
2TR7's C = 24V
rep. motor control
rep. 2TR7
ES = low
FF, L = high
SI = high
R = high
rep. 3IC2, 3C4
rep. or adj. switch
rep. lead or switch
rep. lead or pulse circuit
FO, RE = low
rep. 4IC1, +6V
rep. switch

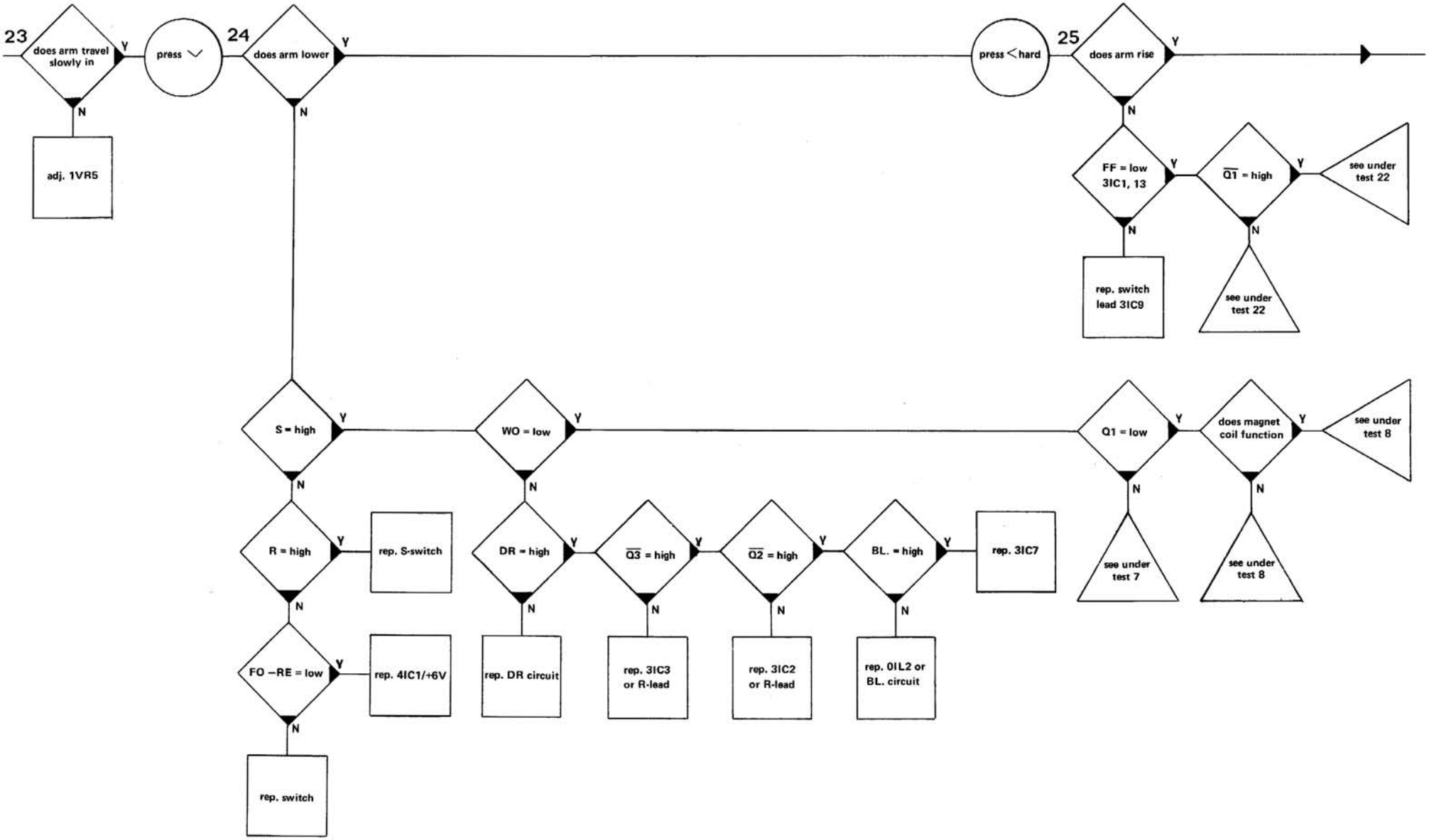

6
does set turn off when arm reaches starting position
Y
N
2TR5's C = 24V
rep. reed relay
2TR4's C = low
rep. 2TR5
SO = 24 V
short onn to chassis
is set turned off
rep. pulse circuit 2TR1
rep. lead or switch
rep. flip-flop 2TR3, 2TR4
ON with 30 cm record
7
does arm stop with 30 cm record
25/30 = low
rep. or adj. switch
WO = low
∝ = high
rep. 3IC8
BL = high
light in detector arm
rep. 1TR12, 1TR13
rep. lamp or +6V
DR = high
rep. DR circuit
BS = high
rep. 1TR21
rep. 3IC7
Q1 = low
ES, OFF, FR, FF, L = high
rep. switch
Q0 = high
DS, SI = high
rep. DS, SI circuit
SI = high
rep. 3IC0 or 3C13
rep. SI circuit
FF = high, FO = low
rep. switch
R = high
rep. 3IC1 or 3C1
FO, RE = low
rep. 4IC1 or +6V
rep. switch
rep. motor control

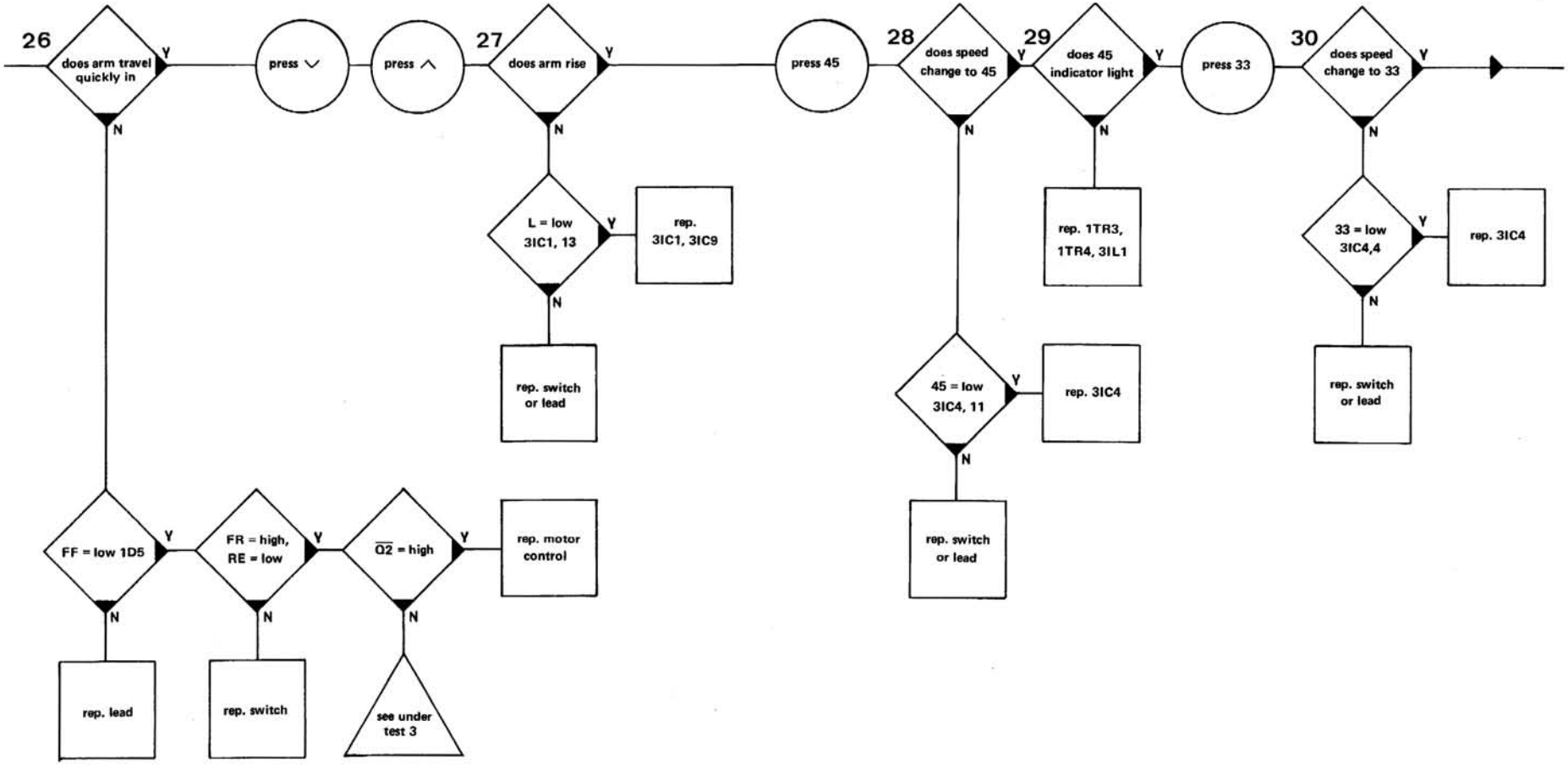

8
does pickup lower
Y
N
does magnet coil function
Y
is damping cylinder blocked mechanically
Y
rep. damping cylinder
N
rep./adj. pickup-arm suspension
N
0TR4's C = E = 2-3V
Y
rep. magnet coil
N
0TR4's E = 0Volt
Y
rep. 1TR10, 1TR11, 0TR4
N
rep. switch at magnet coil
9
does servo function
Y
N
voltage 0R3-0R4 = +24V
Y
does 0IL1 light
Y
rep. 0R3, 0R4, 1D7, 1D13, adj. shutter
N
adj./rep. switch
N
rep. 0IL1 or +6V
10
does arm rise on reaching run-off groove
Y
N
DS = low
Y
$\overline{Q1}$ = high
Y
voltage across 0MS1 = ~3 V
Y
rep. 1TR10, 1TR11, 0TR4
N
rep. 3IC1 or 3C2
N
rep./adj. magnet coil damping cyl.
N
MV = MV'
Y
rep./adj. DS circuit
N
rep./adj. switch

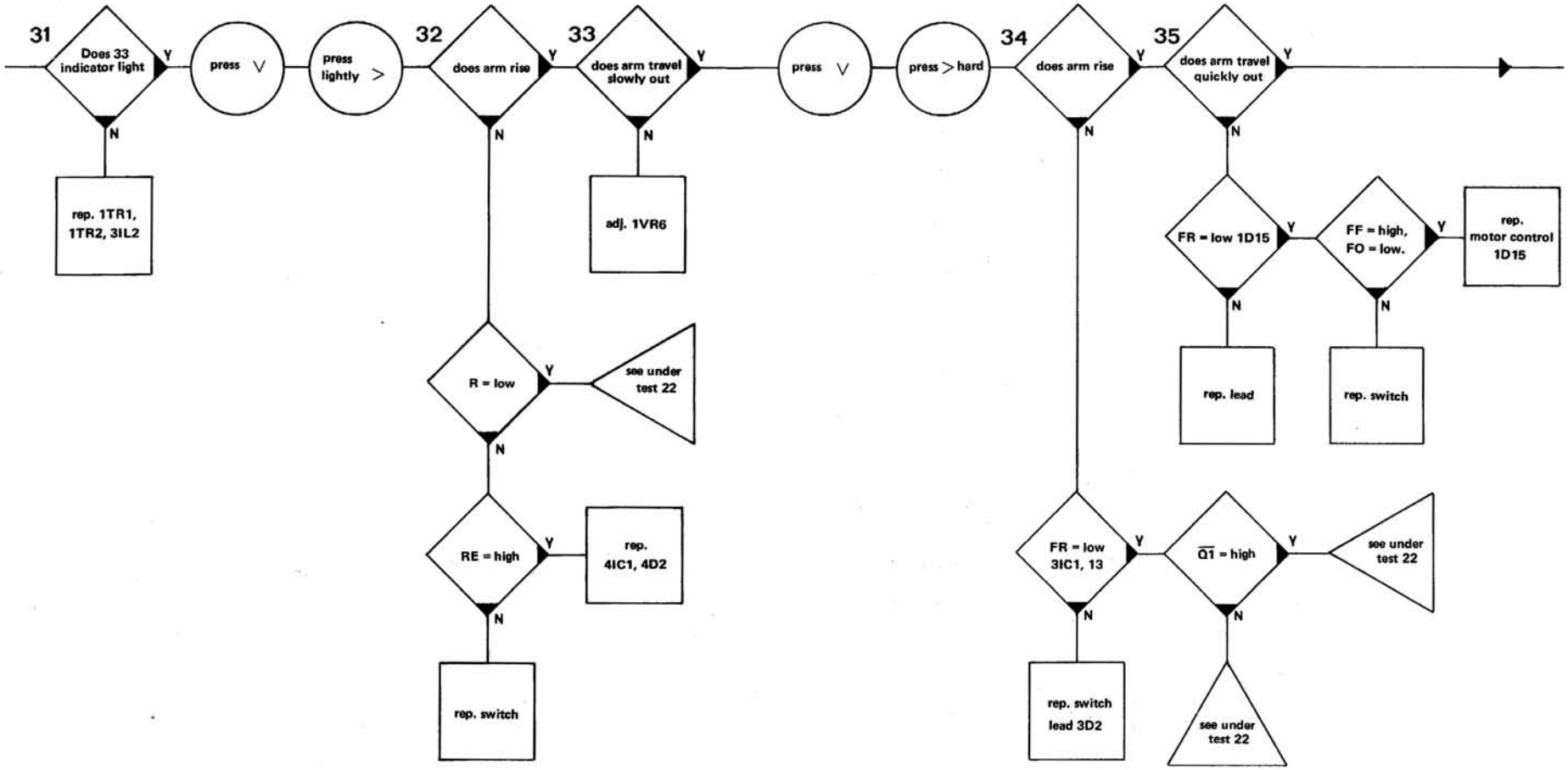

11
does arm travel out
Y
N
$\overline{Q2}$ = low
Y
N
rep. 3IC2
voltage 0R3 - 0R4 = 0V
Y
N
rep. switch
SO = 0 Volt
Y
N
rep. switch
2TR7's C = 24V
Y
N
rep. 2TR7
rep. motor control
12
does set turn off when arm reaches start. pos.
Y
N
see test 6
ON with 25 cm record
13
does arm stop and lower with 25 cm record
Y
N
rep./adj. switch
14
does arm rise on reaching run-off groove
Y
N
see test 10

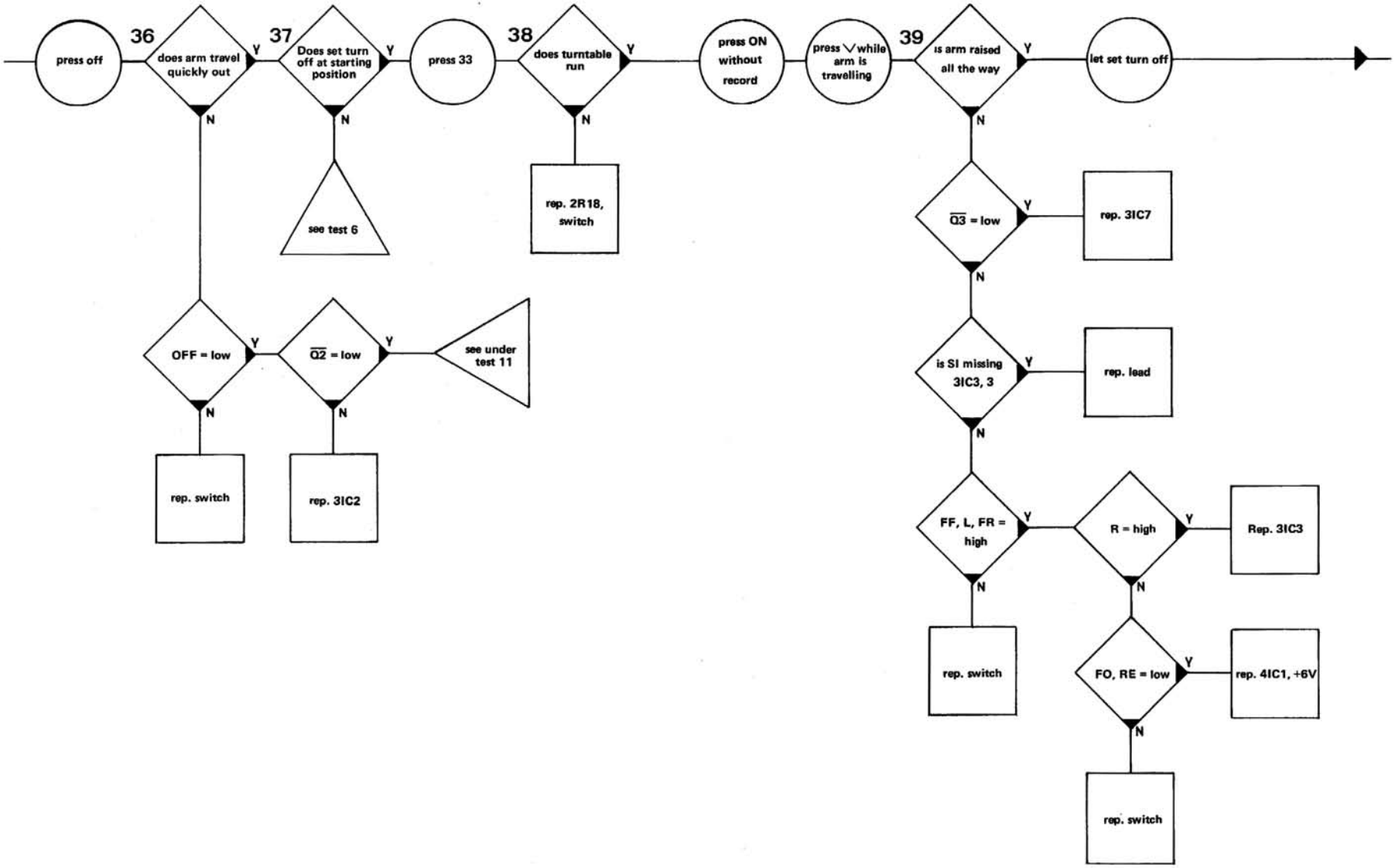

15
does arm travel out
Y
N
see test 11
16
does set turn off when arm reaches start. pos
Y
N
see test 6
ON with 17 cm record
17
does arm stop and lower with 17 cm record
Y
N
∝ = high
Y
see under test 7
N
17 = high
Y
rep. 3IC8
N
rep./adj. switch
18
does speed change to 45 rpm.
Y
N
γ = low
Y
does manual speed changing function
Y
rep. 3IC6
N
see test 2
N
Q5 = high
Y
DR, R, FF, 17, Q2 = high
Y
rep. 3IC6/ 3R1, 3C7
N
DR, R, FF, 17 see test 17, Q2, see test 3
N
is SI 3IC5, 10 missing
Y
rep. lead or pulse circuit
N
33 = low
Y
rep. switch or 3C9
N
Q3 = low
Y
is SI 3IC3, 3 missing
Y
rep. lead or pulse circuit
N
rep. 3IC5 or 3C9
N
FF, L, FR = high
Y
R = high
Y
rep. 3IC3, 3C10
N
rep. switch
N
rep. 4IC1/ +6V/FO-RE switch

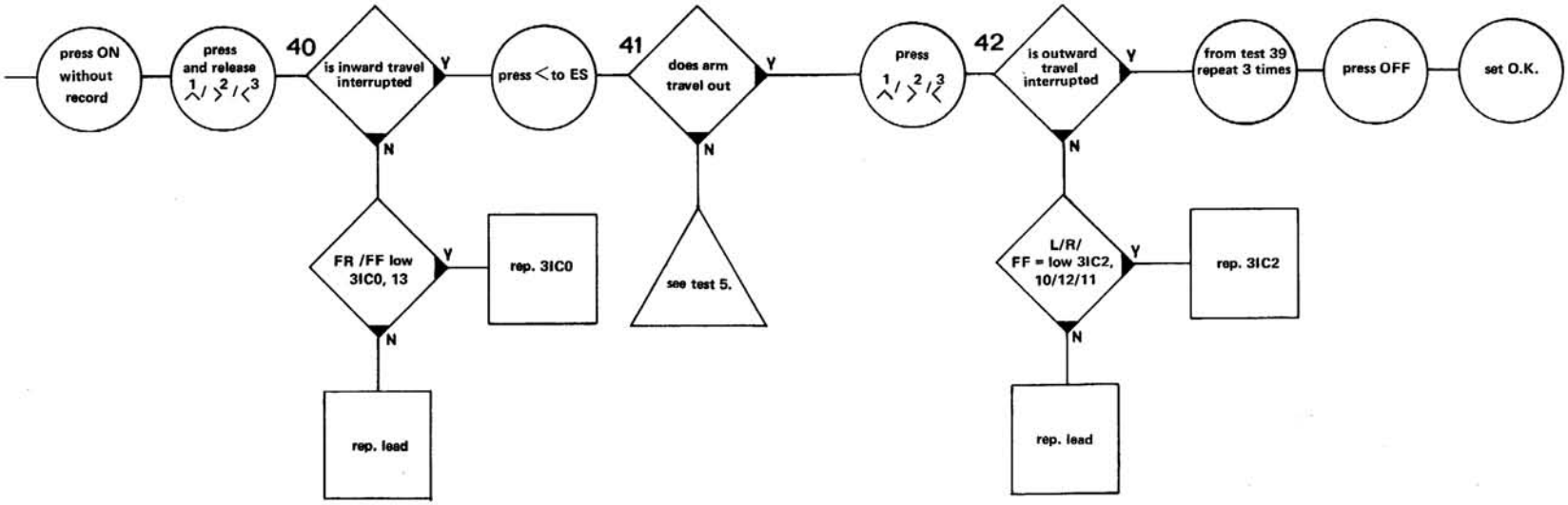

19
does arm rise on reaching run-off groove
Y
N
see test 10
20
does arm travel out
Y
N
see test 11
21
Does set turn off at start. pos.
Y
N
see test 6
ON with 30 cm record
press < lightly
22
does arm rise
Y
N
R = low
Y
N
Q1 = high
Y
N
see under test 10
WO = high
Y
N
rep. 3IC9, 3IC1
Q0 = low
Y
N
S = low
Y
N
rep. 3IC7
S = low
R = low 3IC0, 13
Y
N
rep. 3IC0
rep. lead
FO = high
Y
N
rep. 4IC1, 4D1
rep. switch

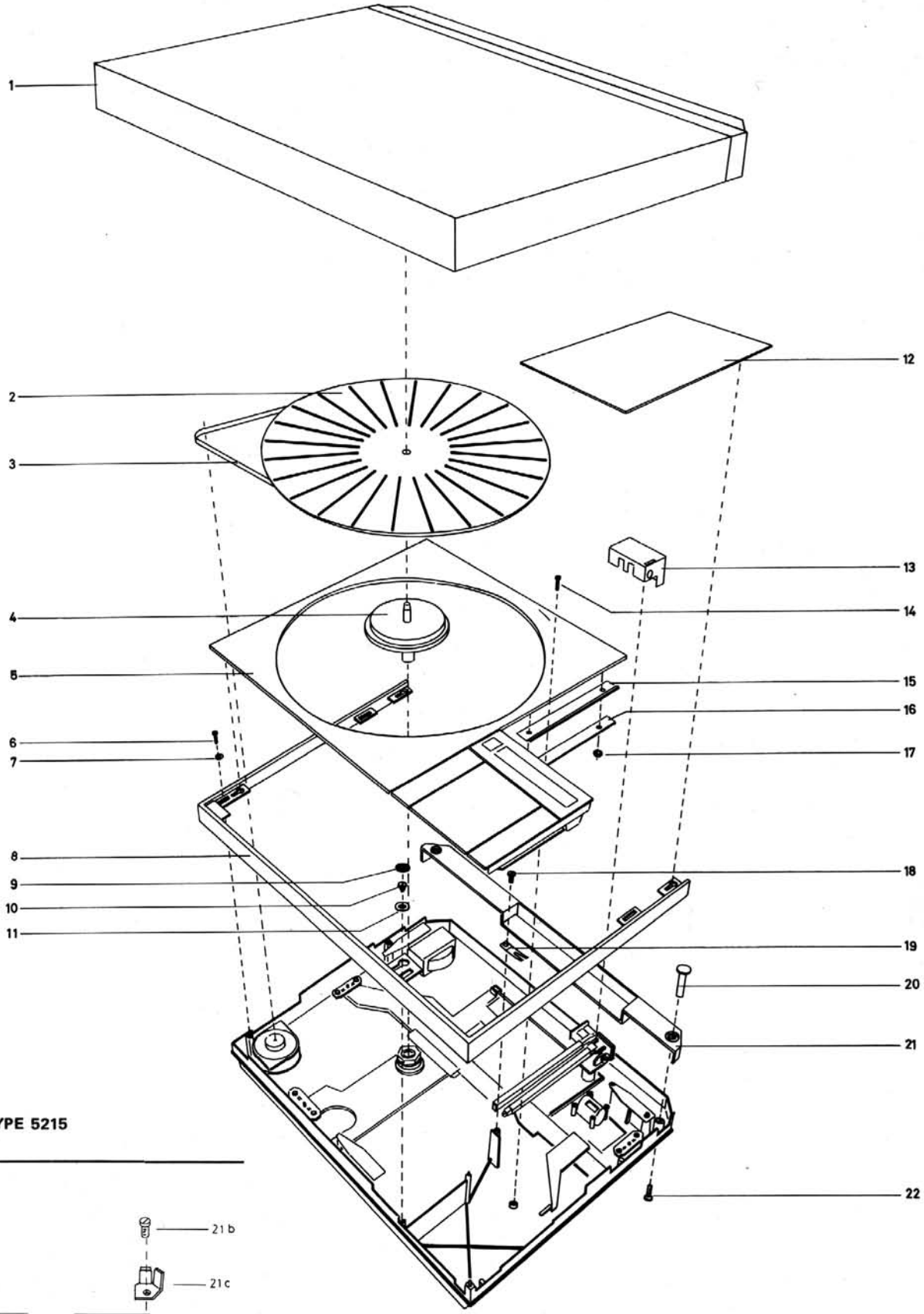

23
does arm travel slowly in
Y
N
adj. 1VR5
press ﹀
24
does arm lower
Y
N
press ﹤hard
25
does arm rise
Y
N
FF = low 3IC1, 13
Y
N
rep. switch lead 3IC9
$\overline{Q1}$ = high
Y
N
see under test 22
see under test 22
S = high
Y
N
R = high
Y
N
rep. S-switch
FO –RE = low
Y
N
rep. 4IC1/+6V
rep. switch
WO = low
Y
N
DR = high
Y
N
rep. DR circuit
$\overline{Q3}$ = high
Y
N
rep. 3IC3 or R-lead
$\overline{Q2}$ = high
Y
N
rep. 3IC2 or R-lead
BL. = high
Y
N
rep. 0IL2 or BL. circuit
rep. 3IC7
Q1 = low
Y
N
see under test 7
does magnet coil function
Y
N
see under test 8
see under test 8


26
does arm travel quickly in
Y
N
press ∨
press ∧
27
does arm rise
Y
N
L = low 3IC1, 13
Y
rep. 3IC1, 3IC9
N
rep. switch or lead
press 45
28
does speed change to 45
Y
N
45 = low 3IC4, 11
Y
rep. 3IC4
N
rep. switch or lead
29
does 45 indicator light
Y
N
rep. 1TR3, 1TR4, 3IL1
press 33
30
does speed change to 33
Y
N
33 = low 3IC4,4
Y
rep. 3IC4
N
rep. switch or lead
FF = low 1D5
Y
N
rep. lead
FR = high, RE = low
Y
N
rep. switch
$\overline{Q2}$ = high
Y
N
see under test 3
rep. motor control


31
Does 33 indicator light
Y
N
rep. 1TR1, 1TR2, 3IL2
press ∨
press lightly >
32
does arm rise
Y
N
R = low
Y
see under test 22
N
RE = high
Y
rep. 4IC1, 4D2
N
rep. switch
33
does arm travel slowly out
Y
N
adj. 1VR6
press ∨
press > hard
34
does arm rise
Y
N
FR = low 3IC1, 13
Y
N
rep. switch lead 3D2
$\overline{Q1}$ = high
Y
see under test 22
N
see under test 22
35
does arm travel quickly out
Y
N
FR = low 1D15
Y
N
rep. lead
FF = high, FO = low.
Y
rep. motor control 1D15
N
rep. switch

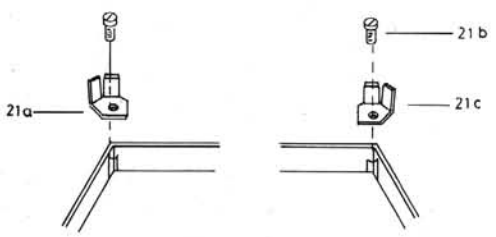

press off
36
does arm travel quickly out
Y
N
37
Does set turn off at starting position
Y
N
see test 6
press 33
38
does turntable run
Y
N
rep. 2R18, switch
press ON without record
press ∨ while arm is travelling
39
is arm raised all the way
Y
N
let set turn off
Q3 = low
Y
N
rep. 3IC7
is SI missing 3IC3, 3
Y
N
rep. lead
FF, L, FR = high
Y
N
rep. switch
R = high
Y
N
Rep. 3IC3
FO, RE = low
Y
N
rep. 4IC1, +6V
rep. switch
OFF = low
Y
N
rep. switch
Q2 = low
Y
N
rep. 3IC2
see under test 11


press ON without record
press and release 1 / 2 / 3
40
is inward travel interrupted
Y
N
press < to ES
41
does arm travel out
Y
N
see test 5.
FR /FF low 3IC0, 13
Y
N
rep. 3IC0
rep. lead
press 1 / 2 / 3
42
is outward travel interrupted
Y
N
L/R/ FF = low 3IC2, 10/12/11
Y
N
rep. 3IC2
rep. lead
from test 39 repeat 3 times
press OFF
set O.K.

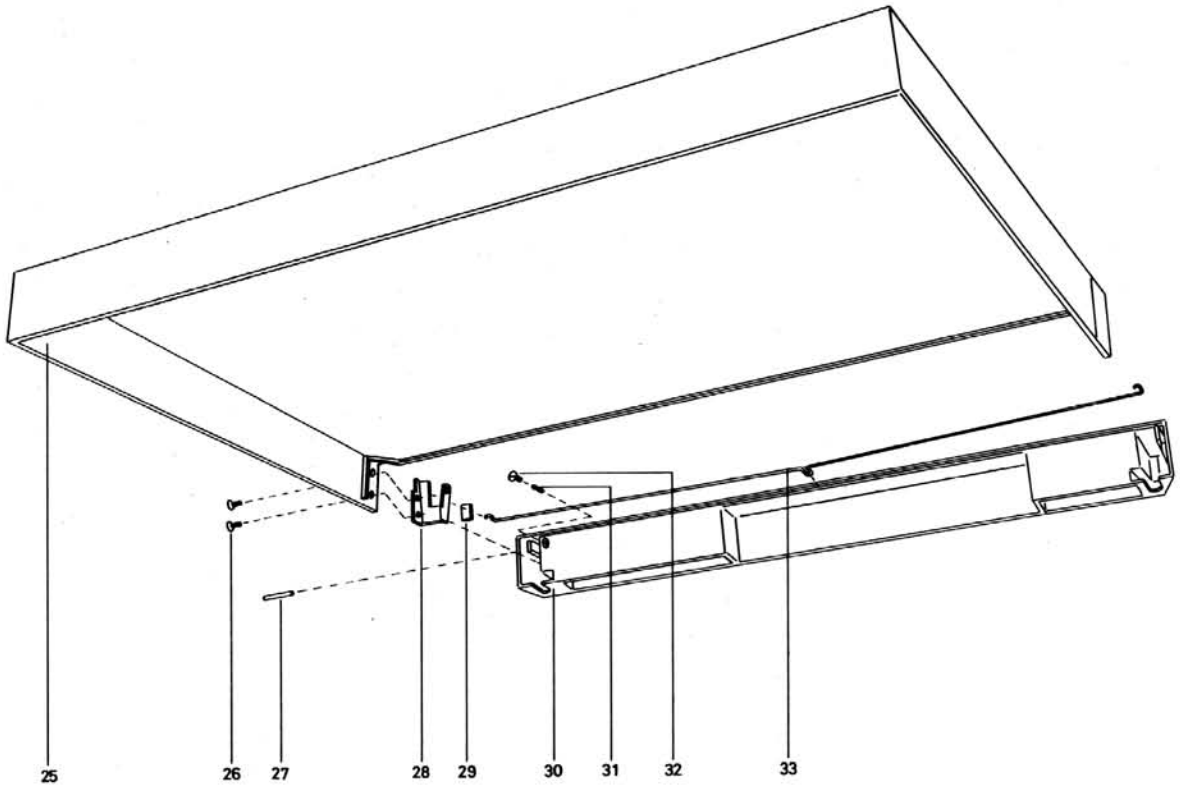


BEOGRAM 4000, TYPE 5215
Correct on page 6-1

Guide for back piece



21a	Angle	3014028
21b	Screw	2038207
21c	Angle	3014029



NOTATER / NOTES / NOTIZEN

PARTS LIST FOR BEOGRAM 4000, TYPE 5215

see page 6-1

1	3164121	Dust Cover
2	2726054	Turntable
3	2732018	Belt
4	2726047	Turntable
5	3458081	Top plate
6	2038009	Screw AM 3 X 8 DIN 63
7	2803004	Washer
8	3411701	Cabinet, teak
	3411703	Cabinet, rosewood
	3411704	Cabinet, oak
9	3912037	Felt washer
10	2038901	Screw
11	2620019	Washer
12	3458080	Top plate
13	3164142	Cover
14	2038216	Screw AM 3 X 10 DIN 84
15	2816085	Spring
16	3014023	Guide plate
17	2380093	Nut M 3
18	2042201	Screw AM 4 X 4 DIN 84
19	2816083	Holder
20	2994012	Bushing
21	3452143	Back plate
22	2042216	Screw AM 4 X 16 DIN 84

25	3164113	Dust cover
	3010007	Stop
	2560036	Decorative list
26	2038055	Screw AM 3 X 6 DIN 63
27	2830014	Bearing needle
28	3030023	Mounting hardware, left
	3030022	Mounting hardware, right
29	3015030	Guide rail
30	3452145	Back plate
31	2072704	Threaded pin
32	2038050	Screw AM 3 X 4 DIN 63
33	2819062	Spring

40	3458092	Dial
41	2775224	Pushbutton
42	2775177	Pushbutton
43	2816067	Spring
44	3152063	Circuit board holder
45	8009016	PC board
46	3030021	Holder
47	3151079	Clamp
48	8009015	PC board
49	2038206	Screw AM 3 X 4 DIN 84
50	2834022	Shaft
51	2812040	Spring
52	2775176	Pushbutton
53	3114050	Chassis
	3322034	Mirror
54	2380011	Nut M 3
55	2038206	Screw AM 3 X 4 DIN 84

see page 6 - 6

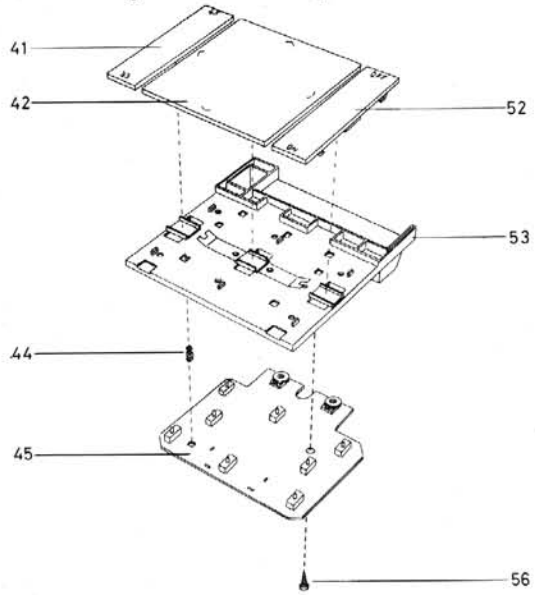
59	2905045	Bearing
60	2830049	Shaft
61	2038216	Screw AM 3 X 10 DIN 84
62	8009011	PC board
63	2072710	Threaded pin
64	2380094	Nut
65	2042211	Screw, AM 4 X 12 DIN 84
66	3014021	Holder
67	2628005	Spring
68	2381008	Nut
69	2993024	Threaded pin
70	2038233	Screw AM 3 X 20 DIN 84
71	2038214	Screw AM 3 X 8 DIN 84
72	7530008	Solder tag
73	2510089	Clamp
74	2510090	Clamp
75	4200265	El. capacitor
76	4200260	El. capacitor
77	4200259	El. capacitor
78	4200258	El. capacitor
79	2038207	Screw, AM 3 X 5 DIN 84
80	2622041	Washer
81	3114042	Chassis
82	3014022	Belt guide
83	2038239	Screw AM 3 X 35 DIN 84
84 *	8400061	Motor
	2722010	Pulley
	3151117	Mounting hardware
	2038055	Screw AM 3 X 6 DIN 63
	2038208	Screw, AM 3 X 5 DIN 84
85	2938074	Rubber bushing
86	2381007	Nut
87	2628005	Spring
88	8300160	Diode
89	5012011	Resistor
90	7530045	Solder tag
91	3172027	Insulating piece
92	3170047	Mica sheet
93	8320103	Transistor
94	3164027	Cover
95	2034215	Screw AM 2 X 8 DIN 84
96	2038206	Screw AM 3 X 4 DIN 84
97	2938097	Insulating bushing
98	8320266	Transistor
	8320265	Transistor
	8320312	Transistor

* Concerning motor with topmounting see page 6-8

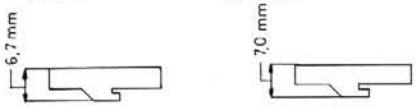
BEOGRAM 4000, TYPE 5215
Correct on page 6-4

Pushbutton system

The pushbutton system has been modified so that PC pos. No. 45 is screwed to chassis 53. Also, push-buttons and pins have been modified. This results in the following corrections to the parts list:



41	Pushbutton	2775275
42	Pushbutton	2775277
44	PC board holder	goes out
52	Pushbutton	2775331
56	Screw	2013209



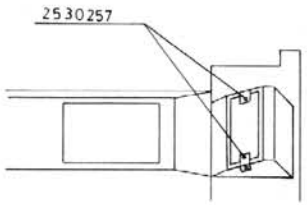
New Old

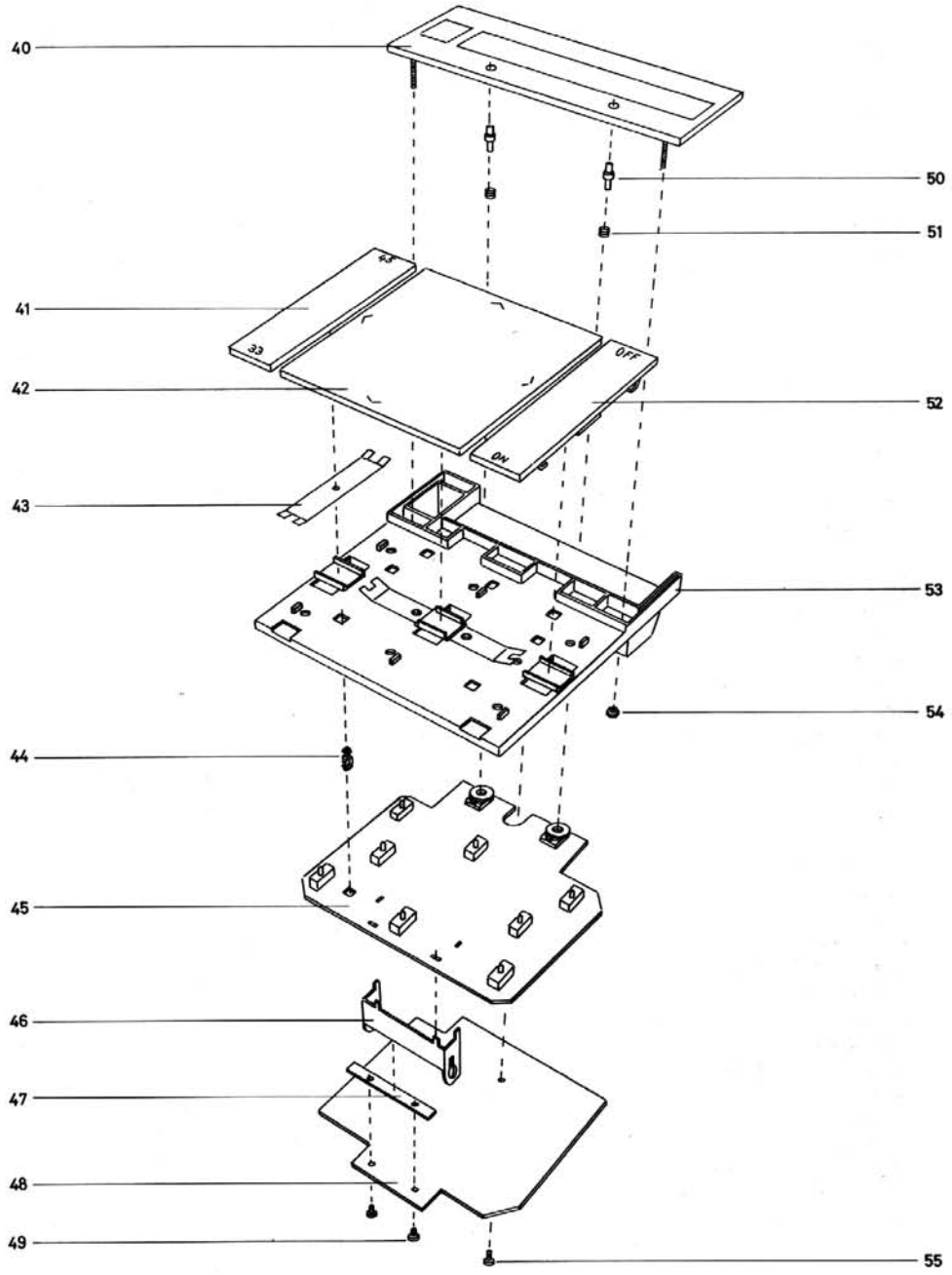
NOTE: New and old parts constitute a whole.

BEOGRAM 4000, TYPE 5215
Correct on page 6-4

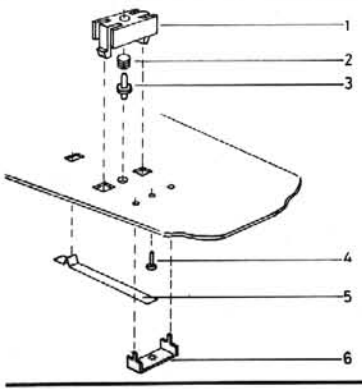
Mirror, pushbutton chassis

In order to secure better fastening of the mirror, two angles have been introduced which are glued on.

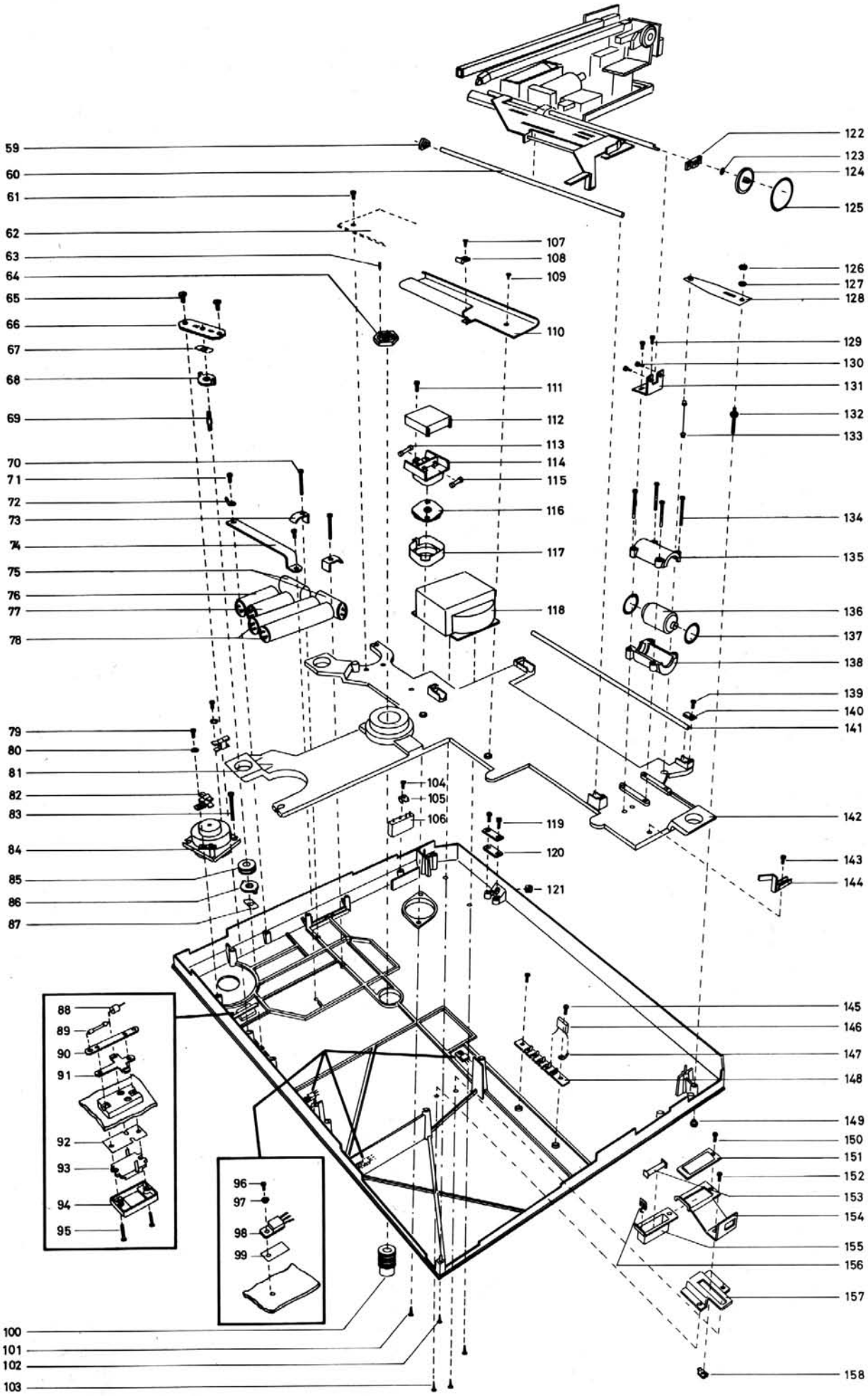




BEOGRAM 4000, TYPE 5215 **Correct on page 6-4**



Pos.	33	FF	45	S	L	ON	FR	OFF
1.	3152068	3152068	3152068	3152068	3152068	3152068	3152068	3152068
2								
3	7500067	2992051	7500067	2992052	7500067	7500067	2992051	7500067
4		2364024		2364024			2364024	
5	7500051	7500051	7500051	7500051	7500051	7500051	7500051	7500051
6	7500061	7500050	7500061		7500061	7500061	7500050	7500061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beginning on page 6 - 4

99	3170121	Mica sheet
100	2905046	Bearing
101	2013012	Screw 2,84 X 12,7 ART 4260
102	2013002	Screw ART 4260 2.84 X 6.35
103	2038055	Screw AM 3 X 6 DIN 63
104	2038209	Screw AM 3 X 6 DIN 84
105	2574043	Bracket
106	8310020	Rectifier B 80 C 2200
107	2013200	Screw Art 4261 2.84 X 6.35
108	2510091	Lead holder
109	2013002	Screw Art 4260 2.84 X 6.35
110	3013017	Lead holder
111	2038214	Screw AM 3 X 8 DIN 84
112	3164109	Cover
	3180607	Sticker
113	6600000	Fuse
114	3131060	Fuscholder
115	6600000	Fuse
116	7401001	Mains-voltage switch
117	3131050	Housing
118	8013107	Mains transformer
119	2038216	Screw AM 3 X 10 DIN 84
120	0287155	Clamp
121	2938077	Rubber bushing
122	2905034	Bearing
123	2620027	Washer
124	2722008	Pulley
	2070701	Threaded pin
	2380068	Nut
125	2732016	Belt
126	2380016	Nut
127	2622022	Washer
128	2816081	Spring
129	2038206	Screw AM 3 X 4 DIN 84
130	2038206	Screw AM 3 X 4 DIN 84
131	2530253	Bracket
132	2072914	Screw
133	3955022	Suspension
134	2038235	Screw AM 3 X 25 DIN 84
135	3131048	Housing
136	8400062	Motor
	2722005	Pulley
137	2732015	Rubber disc.
138	3131048	Housing
139	2038216	Screw AM 3 X 10 DIN 84
140	2644003	Clamp
141	2830045	Shaft
142	3114042	Chassis
143	2038206	Screw AM 3 X 4 DIN 84
144	2542295	Bracket
145	2038208	Screw, AM 3 X 5 DIN 84
146	4130087	Capacitor
147	7530005	Solder tag
148	7536025	Tagstrip
149	0585018	Plastic foot
150	2038249	Screw AM 3 X 8 DIN 84 nylon
151	3375017	Cover
152	2038208	Screw, AM 3 X 6 DIN 84
153	8230038	Neon lamp
154	3151092	Holder
	3322035	Mirror
155	3131058	Housing for neon lamp
156	7500064	Contact spring
157	3151090	Holder
158	2389030	Nut

BEOGRAM 4000, TYPE 5215
Correct on page 6-7

Servobelt

As from unit No. 157700, a triangular belt has been introduced instead of the previous round one.

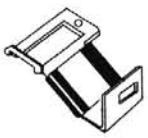
This results in the following corrections to the parts list:

124	Pulley	2722015
125	Belt	2732032
136	Pulley	2722016

The belt and pulleys constitute a whole.

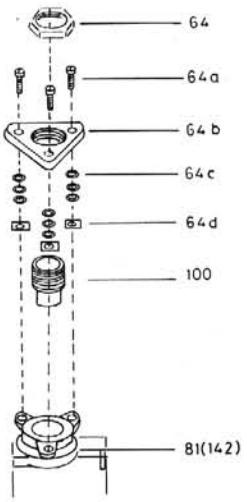
Holder for neon lamp (154)

Two mouldings as shown by the sketch have been introduced in current production. They are glued on.



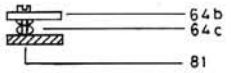
Moulding 3950229

Disc bearing (tiltable)



64	Nut	2380096
64a	Screw	2038216
64b	Cap	2641076
64c	Washer	2624027
64d	Plastic spire	2390020
100	Bearing	2905046
81	Chassis	3114066

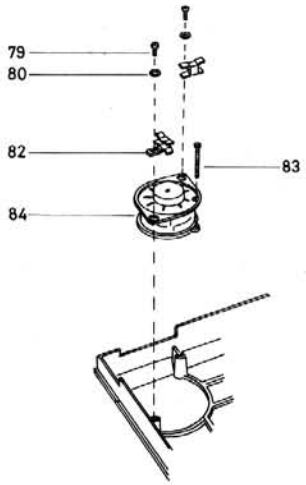
Washers 64c should be mounted as shown by the sketch.



124	Pointed screw	2072921

Correct on page 6-7 to be continued on page 6-8

Motor with topmounting



79	2038207	Screw, AM 3 X 5 DIN 84
80	2622041	Washer
82	3014022	Belt guide
83	2038239	Screw, AM 3 X 35 DIN 84
84	8400046	Motor
	2722007	Pulley

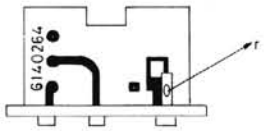
Not shown parts

6271048	Mains lead
6270010	Pickup cable with plug
3535024	Instruction diagram
3391384	Outer carton
3391385	Top/bottom inserts
3397157	Packing, foam insert, lid
3397158	Packing, gable insert, left
3397159	Packing, gable insert, right

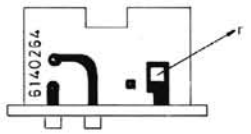
BEOGRAM 4000, TYPE 5215
Correct on page 6-7

Transformer

118	Transformer	8013131
214	PC unit	8009013



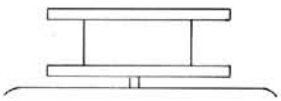
PC unit belonging to transformer 8013107: When



substituting transformer 8013131 it is necessary to replace PC unit 8009013.
See sketch.

Drive motor

84	Drive motor with mounting bushings	8400061
	Drive motor less bushings	8400066
	Both motors are equipped with drive bushing	2722010



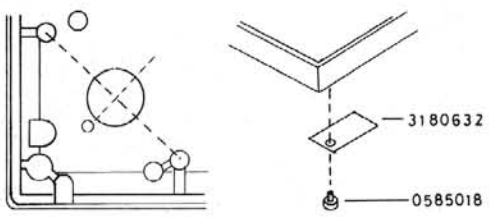
82	Belt guide	goes out

BEOGRAM 4000, TYPE 5215
Correct on page 6-8

Drive motor

When replacing motor 8400046 with motor 8400061, a 20 mm dia. hole must be drilled in the bottom to accommodate the shaft and bottom bearing.

After having installed the motor, affix sticker 3180632 over the hole in the bottom.



see page 6-11

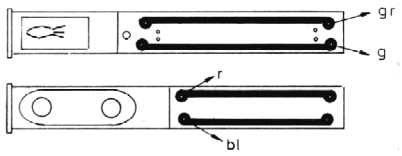
170	2038206	Screw AM 3 X 4 DIN 84
171	3151084	Chassis
172	2390004	Circlip
173	2812037	Spring
174	7500058	Spring
175	2389030	Nut
176	7500057	Spring
177	2038247	Screw, AM 3 X 6 DIN 84
178	7530005	Solder tag
179	2072918	Threaded pin
180	3151086	Holder
181	2816074	Spring
182	2072705	Threaded pin.
183	2038247	Screw, AM 3 X 6 DIN 84
184	3152076	Holder
185	2038208	Screw, AM 3 X 5 DIN 84
186	3391407	Transit protection device
187	2034236	Screw AM 2 X 3 DIN 84
188	7200022	Socket
189	3152088	Holder
190	3937808	Arm
191	2390004	Circlip
192	2810044	Spring
	6430026	Insulatiin
193	2034914	Screw AM 2 X 6 DIN 63
194	8760002	Fotoresistor
195	2853025	Arm
196	8230020	Lamp
197	3375018	Optics
198	2853026	Arm
199	2810024	Spring
200	6810001	Magnet coil
201	2850047	Shaft
202	2038948	Screw
203	2852022	Arm
204	2034236	Screw AM 2 X 3 DIN 84
205	2854022	Arm
206	2850052	Pickup arm
207	2034914	Screw AM 2 X 6 DIN 63
208	2038216	Screw AM 3 X 10 DIN 84
209	2641075	Clamp
210	2072911	Threaded pin
211	8905428	Pick-up unit
	3624008	Service-kit for pick-up
212	3302158	Cap
213	2038206	Screw AM 3 X 4 DIN 84
214	8009013	PC board
	7500051	Contact spring
	2364024	Rivet
	2622002	Washer
	7530040	Solder lug
215	2038948	Screw
216	2624021	Washer
217	2038206	Screw AM 3 X 4 DIN 84
218	8230025	Lamp
219	7201016	Socket

BEOGRAM 4000, TYPE 5215
Correct on page 6-9

212	Cap for pick-up	3302230

Detector arm

Soldered optics



188	Socket	goes out
197	Optics	3375023

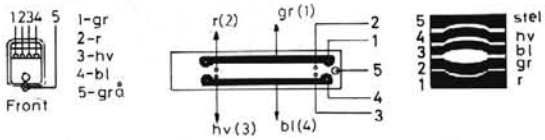
beginning on page 6-9

220	8009014	PC board
	7500051	Contact spring
	2364024	Rivet
221	2389031	Nut
222	2038208	Screw, AM 3 X 5 DIN 84
223	3152074	Holder
224	2993025	Spindle
225	2038206	Screw AM 3 X 4 DIN 84
226	2622041	Washer
227	2830046	Shaft
228	2390004	Circlip
229	3190053	Pointer
230	2644010	Cover
231	2812040	Spring
232	2798003	Eccentric
233	2819061	Spring
234	2851062	Arm
235	2812041	Spring
236	2390004	Circlip
237	2894029	Shaft
238	2802023	Washer
239	2038233	Screw AM 3 X 20 DIN 84
240	2072705	Threaded pin
241	2034231	Screw AM 2 X 4 DIN 84
242	2854023	Arm
243	2390004	Circlip
244	3342020	Counterweight
245	3152089	Holder
246	2390046	Circlip
247	2070400	Threaded pin
248	3150032	Bearing holder
	2900003	Ball bearing
	2622168	Washer
	2812036	Spring
	2390047	Circlip
249	2700008	Adjustment bearing
250	2834038	Shaft
251	2831015	Shaft
252	2361018	Locking pin
253	2622167	Washer
254	2038206	Screw AM 3 X 4 DIN 84
255	3131059	Damper cylinder
256	2038222	Screw AM 3 X 14 DIN 84
257	3164112	Cover
258	2854024	Diaphragmarm
259	2013203	Screw 2.84 X 12.70 ART 4261
260	3131052	Housing
	5210004	Fotoresistor
261	3151085	Holder
262	2038946	Screw
263	2794029	Roller
264	2622041	Washer
265	2038208	Screw, AM 3 X 5 DIN 84
266	2798003	Eccentric
267	3114046	Chassis
	3180536	Sticker for transport screw
	2038946	Screw
	2620028	Rubber disc
268	2625003	Tooth-lock washer
269	2380016	Nut
270	2510086	Bracket
271	6140272	PC board
272	2038206	Screw AM 3 X 4 DIN 84

BEOGRAM 4000, TYPE 5215
Correct on page 6-10

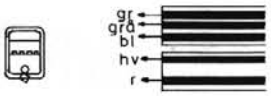
Pick-up arm

The pick-up arm has been modified so that the leads from the pick-up socket are soldered directly to the PC on pick-up arm holder 245.



206	Pick-up arm, assembled	2850073
244	Counterbalance weight	3342030
245	Holder	3152160

When replacing pick-up arm 2850052 with pick-up arm 2850073, counterbalance weight 3342020 must be replaced with counterbalance weight 3342030.



BEOGRAM 4000, TYPE 5215
Correct on page 6-10

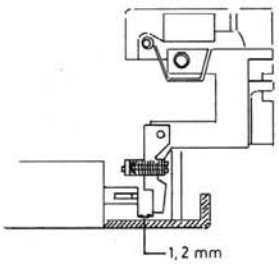
Stylus force spring (250)

The stylus force adjustment mechanism has been modified so that the shaft, spring, and gearwheel are mounted without use of glue. The mechanism is supplied in kit form under index No. 2834041.

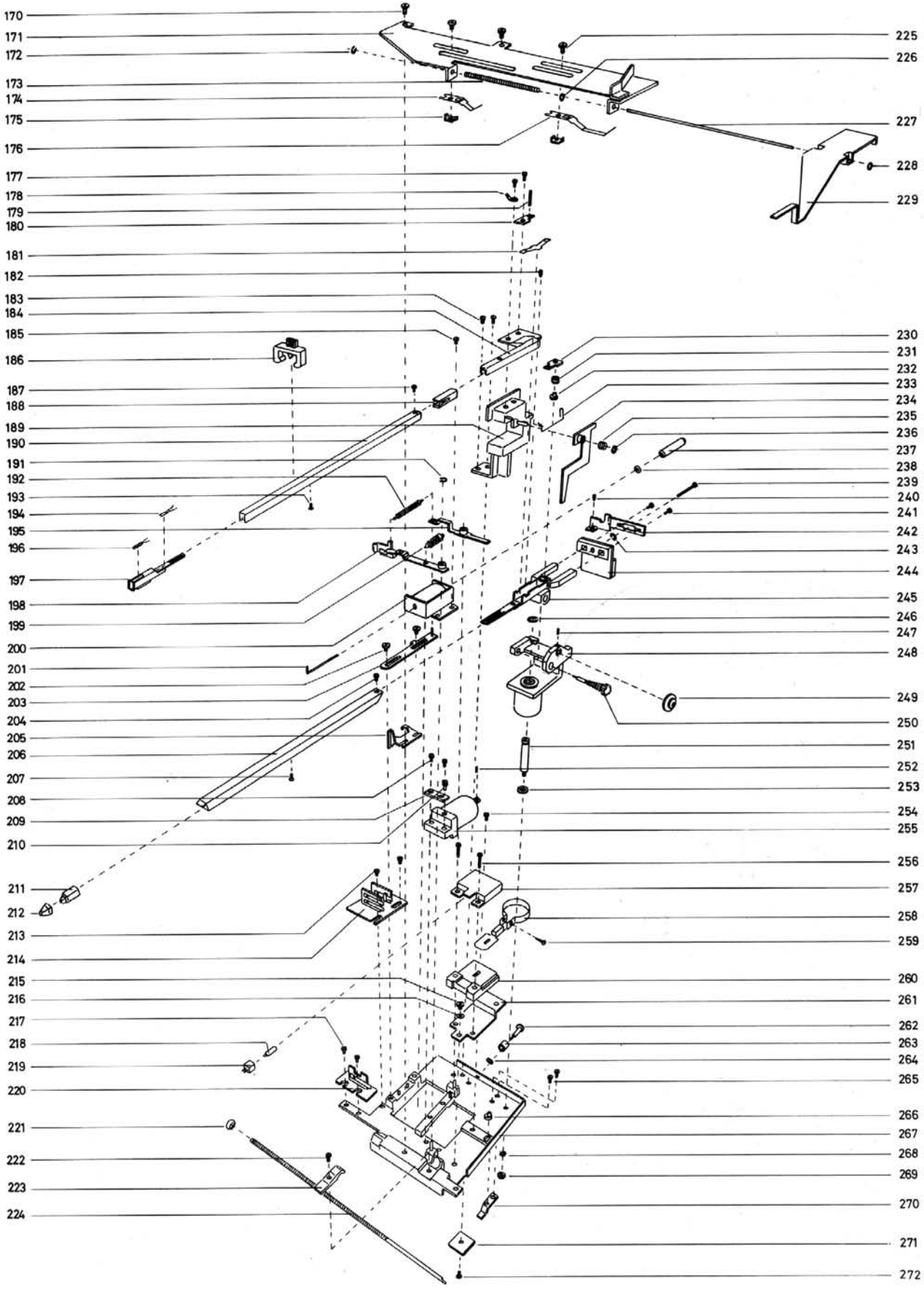
Leads, pick-up arm

248	Wire bundle (copper wire)	6300059

Arm 234, adjustable



234	Arm complete	2851083
234a	Screw	2034219
234b	Spring	2812065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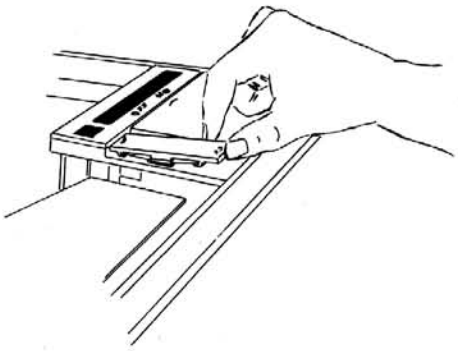
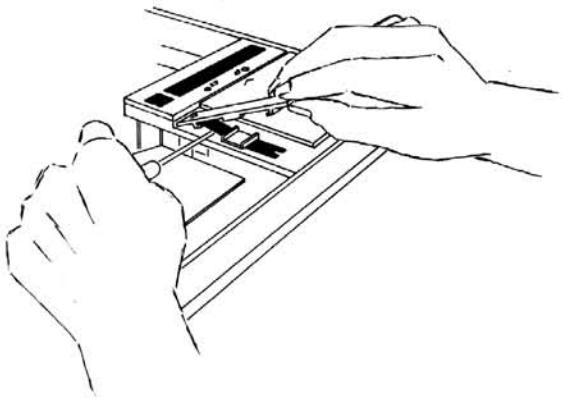
SERVICE TIPS

Demontering og montering af trykknap

Dismounting and mounting of pushbutton

Demontierung und Montierung vom Druckknopf

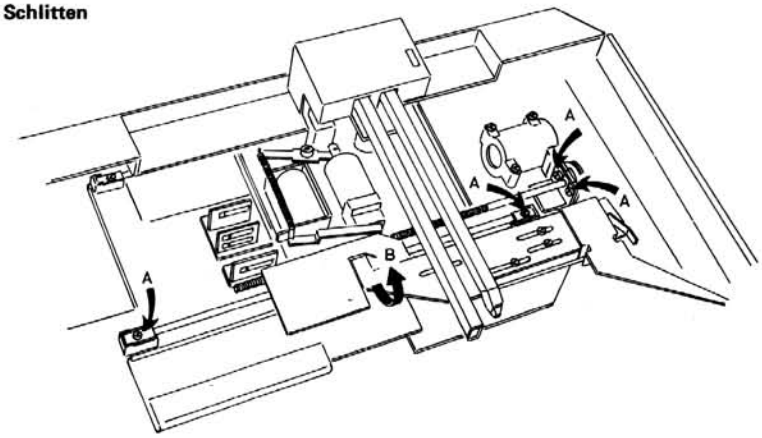




Demontering af slæde

Dismounting of slide

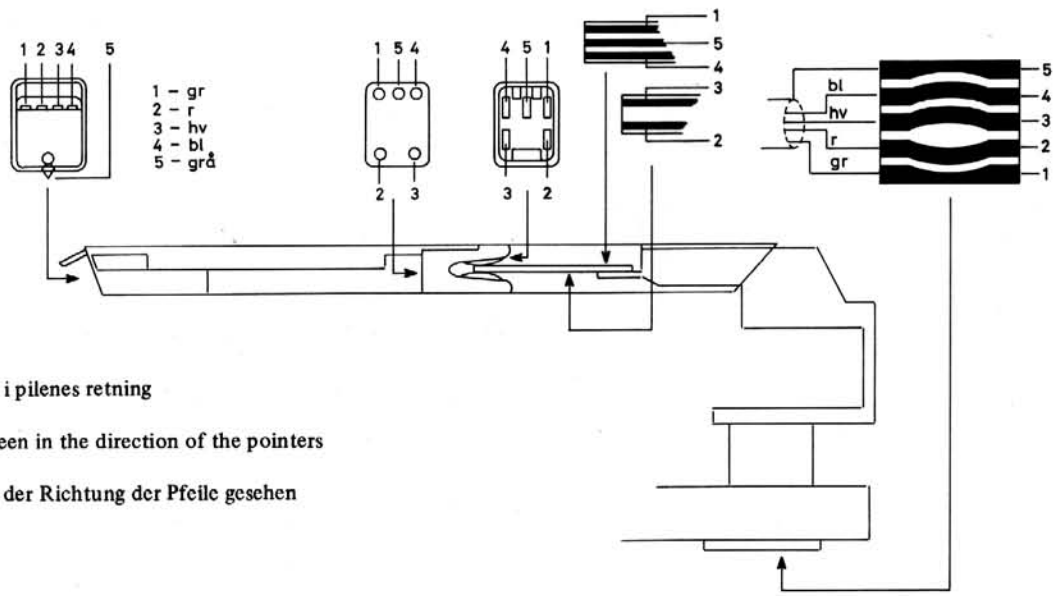
Demontierung vom Schlitten



Ledningsmontering i pick-up arm

Mounting of cable in the pick-up arm

Montierung einer Leitung im Tonabnehmerarm



Skitser set i pilenes retning

Sketches seen in the direction of the pointers

Skizzen in der Richtung der Pfeile gesehen

technical information

ISSUE NO. BG1.

GLOUCESTER

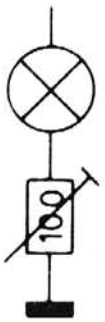
2ND JANUARY 1974

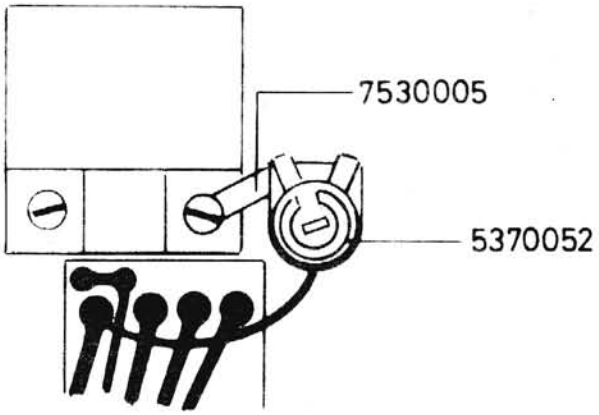
BEOGRAM 4000

Servo system adjustment.

The sensitivity of the servo system corresponding to 15-19 record grooves deviation away from the record centre has until now, been adjusted by pushing the diaphragm up and down, which varies the amount of light falling on the photo resistors. This adjustment has become difficult because of tolerances in the sensitivity of the photo resistors and the light output of the bulb.

In order to overcome this a potentiometer of 100Ω has been put in series with the lamp OIL1; this adjusts the brightness of the bulb and therefore the sensitivity of the servo system.





technical information

ISSUE NO. BG2.

GLOUCESTER

2ND JANUARY 1974

BEOGRAM 4000 Type 5215

Servo drive belt

Because of difficulties in supply of the original round belt, a triangular belt has been introduced. This gives the following corrections to the parts lists:

Pos.	124	Pulley	2722015
Pos.	125	Belt	2732032
Pos.	136	Pulley	2722016

When replacing the earlier belt or pulley all three parts mentioned above must be replaced at the same time due to differences in design.

The modification has been introduced in production from S.N. 157700.

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technical information

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BEOGRAM 4000 Type 5215

Detector arm circuit

In order to improve the life expectancy of the lamp in the detector arm, a new bulb is used, part number 8230047. Since this lamp has a lower consumption and light output than its predecessor it has been necessary to make minor changes to the BL and DR circuits.

BL circuit

The lower lamp consumption can result in insufficient voltage being developed across 1R30 to operate 1TR12 reliably. Therefore, 1R30 is changed from 15 ohms to 22 ohms, part number 5011004.

DR circuit

Since the new lamp has less intensity it is necessary to remove the 50K potentiometer mounted on the print side of the PW board. This, it will be remembered, was installed to give a measure of control over the sensitivity of the DR circuit for dealing with semi-transparent records and is not shown in the circuit diagram.

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